Agilent G1701DA MSD Productivity ChemStation Software

(version D.02.xx)

Installation Manual

Agilent Technologies

Notices

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In this manual...

This manual contains the information needed by a person experienced with Microsoft Windows operating systems to install the Agilent G1701DA MSD Productivity ChemStation software on a properly equipped personal computer.

1 General Information

This chapter describes computer requirements and recommendations for the MSD Productivity ChemStation installation. It also describes how to prepare the computer's operating system for installation, and how to determine the communication method needed for each system.

2 Local Area Network Configuration

This chapter describes network configuration activities required for the 5975 and 5973 Series MSD instruments and LAN-based 6890 and 6850 GCs.

3 Installing Agilent Bootp Service

Agilent Bootp Service software is only required for older GCs (6890 and 6850 GCs with a the JetDirect card installed). If desired, it can assign IP addresses to the 5975 or 5973 Series MSD. This chapter describes those procedures.

4 GPIB Driver Installation

This chapter describes how to install and configure GPIB drivers required for 5973A MSDs and/or GPIB-based 6890A/Plus GC instruments.

5 Installing Agilent MSD Productivity ChemStation Software

After communications are set up according to either Chapter 3 or Chapter 4, this chapter contains the procedure for installing the Agilent MSD Productivity ChemStation software.

6 Supplemental Information

This chapter contains helpful information such as how to upgrade from previous versions of MSD ChemStation, how to modify, repair, or remove the MSD ChemStation software, and how to use the Windows Firewall with Agilent MSD ChemStation software. Also in this chapter are 5975 and 5973 Series MSD LAN system information and how to upgrade MSD firmware.

7 Troubleshooting

This chapter describes procedures to help you isolate and solve any communication issues your system might incur.

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This chapter describes computer requirements and recommendations for the MSD Productivity ChemStation installation. It also describes how to prepare the computer's operating system for installation, and how to determine the communication method needed for each system.

If you are upgrading to Agilent MSD Productivity ChemStation from a version already installed on Windows 2000/XP, read this chapter, then go directly to Chapter 6.

Before You Begin

This manual contains instructions to install and configure the G1701DA MSD Productivity ChemStation software. Your service representative must finish installing your MSD hardware before you begin the software installation. Keep this manual, and use it if you need to reinstall the MSD ChemStation software.

The instructions in this manual and software license vary depending on which instrument model you have. Disregard the sections that do not apply to your configuration.

Installation of the MSD Productivity ChemStation software includes the following steps:

1. Verify the computer meets program requirements before you start (this chapter).
2. Confirm that you have a correct operating system (this chapter).
3. Prepare Microsoft Windows XP® Professional for software installation (this chapter).
4. Determine the communications method for your systems (this chapter).
5. Configure the LAN network (Chapter 2 and Chapter 3). Applies to LAN-based instruments only.

   OR

   Install and configure GPIB (Chapter 4). Applies to GPIB-based instruments only.
6. Install and configure the Agilent MSD Productivity ChemStation software (Chapter 5).

Additional information that may be useful can be found in Chapter 6, “Supplemental Information:”

- Upgrading from earlier versions
- Reinstalling the software
- Removing the software
- Using the software with the Windows XP Service Pack 2 firewall enabled

- Installing 5973 Series MSD LAN-based instruments to the site LAN

If experiencing problems with the installation, refer to Chapter 7, “Troubleshooting.”

Computer Requirements and Recommendations

This section describes the hardware recommendations and operating system requirements for the computer that will run the MSD ChemStation software.

Hardware

Agilent recommends a computer that meets or exceeds the configuration listed below:

- A Pentium IV 2.8 GHz or faster CPU
- Super VGA adapter set at 1024 × 768 or higher resolution, and 65,536 (16-bit) or higher colors
- Color monitor
- DVD/CD-ROM drive (A DVD drive is not required for installation, but is recommended for viewing support documentation.)
- 256 MB RAM for a single instrument, or 512 MB RAM for multiple instruments (128 MB RAM for each additional GC or MSD)
- 10/100 Base-T Ethernet (803.3) interface card for LAN-based instrument control
- A PC slot available for the 82350B GPIB adapter (only required if using GPIB instrument control)
- Hewlett-Packard LaserJet 2200D or 2300 printer with PostScript drivers version 5.02.
  - HP DeskJet printers are not tested/supported
  - HP LaserJet 4050 or 4100 printers, although not tested with this release, are supported due to testing on older revisions. Supported drivers include PCL 5e or 6, revision 5.02.
- A sound card and speakers or headphones
- A Windows 2000- or XP-supported mouse
- A data backup device

Operating system

The MSD ChemStation requires the following operating system:

- Microsoft Windows XP Professional with Service Pack 2, or Microsoft Windows 2000 Professional with Service Pack 4
- Microsoft Internet Explorer 5.5 with Service Pack 2 or Internet Explorer 6.0 is required.

Throughout the manual, references to “Windows 2000” and “Windows XP” imply “Microsoft Windows 2000 Professional” and “Microsoft Windows XP Professional,” respectively.

Preparing the Computer

Before installing the MSD ChemStation software, prepare the computer as follows:

1. Disable all power-saving features of the BIOS—see the PC manual.
2. Disable all power-saving programs—see the PC manual.
3. Backup any important data and other files.
4. Verify that all disk partitions on the MSD ChemStation computer hard drives are formatted for NTFS and that active file systems are uncompressed. See the Windows manual.
5. Verify that the TCP/IP networking protocols are installed and enabled. See the Windows manual.
6. Create a Windows 2000 or XP repair disk and recovery disks. See the Windows manual.

Some devices supported by Windows 2000 or XP are not supported by MSD ChemStation software (for example, magneto-optical drives and external CD-ROM writers). Do not use these devices.

Performance settings

To increase system performance, Agilent recommends minimizing the Windows 2000 or XP desktop configuration as follows:

- No unnecessary desktop icons displayed
- No screen saver enabled
- No background or tray applications

Microsoft Windows XP appearance settings

Certain appearance changes will make installation easier. The rest of this manual assumes that these changes have been made.

1. To switch to Windows classic folders, open Windows Explorer. Click the **Views** icon at the right end of the toolbar and select **List**. Select **Tools/Folder Options**. In **Tasks**, select **Use Windows classic folders**. Click **Apply**.
2. To display full paths in titles, select **View** and check **Display the full path in the title bar**.
3. To display file extensions, clear (uncheck) **Hide extensions for known file types**. Select **Apply to All Folders**. Reply **Yes** to the Folder views screen, click **OK**, and exit Windows Explorer.

Disabling or configuring the Windows XP Firewall

The Windows XP Service Pack 2 comes with an updated version of the Internet Connection Firewall named Windows Firewall. The Windows Firewall is automatically activated during Service Pack 2 installation. Windows Firewall is known to cause conflicts with the functionalities of the Agilent MSD ChemStation.

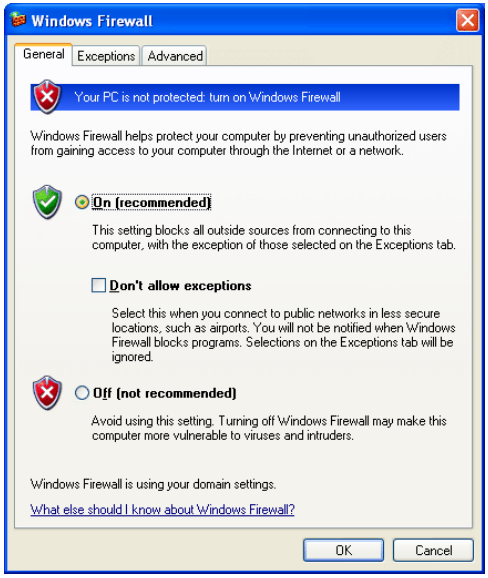
If you purchased a bundled computer from Agilent, the firewall is disabled by default.

If the Windows Firewall is not needed, disable it as follows:

1. Log onto the computer with administrative privileges.
2. Select **Start/Control Panel/Security Center** to display the Windows Security Center.

Windows Security Center
Security Center
Help protect your PC
Resources
Get the latest security and virus information from Microsoft
Check for the latest updates from Windows Update
Get support for security-related issues
Get help about Security Center
Change the way Security Center alerts me
Security Essentials
The security settings on this computer are managed by a network administrator because it is part of a domain (a group of computers on a network). To help protect your computer, the administrator of this computer should do the following:
Install and use a firewall such as Windows Firewall in Microsoft Windows XP or another firewall.
Set up Automatic Updates to download and install critical updates automatically.
Install antivirus software and keep it turned on and up to date.
What's new in Windows to help protect my computer?
Manage security settings for:
Internet Options
Automatic Updates
Windows Firewall
At Microsoft, we care about your privacy. Please read our privacy statement.

3 To display the Windows Firewall configuration dialog, select the **Windows Firewall** icon. Select **Off**, then click **OK**.


Windows Firewall
General
Exceptions
Advanced
Your PC is not protected: turn on Windows Firewall
Windows Firewall helps protect your computer by preventing unauthorized users from gaining access to your computer through the Internet or a network.
On (recommended)
This setting blocks all outside sources from connecting to this computer, with the exception of those selected on the Exceptions tab.
Don't allow exceptions
Select this when you connect to public networks in less secure locations, such as airports. You will not be notified when Windows Firewall blocks programs. Selections on the Exceptions tab will be ignored.
Off (not recommended)
Avoid using this setting. Turning off Windows Firewall may make this computer more vulnerable to viruses and intruders.
Windows Firewall is using your domain settings.
What else should I know about Windows Firewall?
OK
Cancel

If using the Windows Firewall, see "Using the Windows Firewall with the Agilent MSD ChemStation" on page 85.

Determine the System Communication Method(s)

Before continuing, determine how the instruments will communicate with the MSD ChemStation. Depending on the instrument models, the MSD ChemStation can control them using LAN or GPIB (a proprietary serial communications method).

LAN communications

If using LAN communications, set the IP addresses at the instruments if possible, or use the Agilent Bootp Service. Refer to Table 1 below. DHCP is not supported for assignment of instrument IP addresses.

Note that all 5975 and any 5973 Series MSDs with a local control panel require LAN communications.

Table 1 LAN addressing for the MSD ChemStation

Instrument	Model	Supported firmware revision	LAN Board firmware	Supported IP addressing method	Reference
5975 Series MSD	G3170A G3171A G3172A G3174A	5.01.90*	—	Set at MSD (preferred) or use Bootp Service	page 36 or page 46
5973N/inert series MSD (5973A LAN upgrade)	G2577A G2578A G2579A G2588A G2589A	5.01.90*	—	Set at MSD (preferred) or use Bootp Service	page 36 or page 46
5973A, upgraded to LAN† MSD	G1098A G1099A G1999A	5.01.90*	—	Use Bootp Service	page 46
6890N GC System	G1530N/ G1540N	≥ N.05.04	LAN Assembly 04.7B3	Set at GC	page 34
6890A/Plus GC System	G1530A/ G1540A	≥ A.03.08	JetDirect Card J4100 - K.08.32 J2552 - A.08.32	Use Bootp Service	page 46

Table 1 LAN addressing for the MSD ChemStation (continued)

Instrument	Model	Supported firmware revision	LAN Board firmware	Supported IP addressing method	Reference
6850 GC System	G2630A	≥ A.05.03	LAN Assembly‡ 04.7B3	Set at GC	page 35
		≥ A.03.03	JetDirect Card J4100 - K.08.32 J2552 - A.08.32	Use Bootp Service	page 46

* This was the latest MSD firmware version when this manual was released. For more information, see "Check for an MSD Firmware Mismatch" on page 76.

† Requires accessory upgrade kit G1088A

‡ 6850 GCs with Serial Number ≥ US10243001 are supported.

Use the same LAN IP addressing system for all LAN devices if possible. While not mandatory, this can make troubleshooting simpler.

GPIB communications

The 5973A MSD supports only GPIB communications. The 5973 MSDs which require GPIB do not have a local control panel (models G1098A, G1099A, and G1999A).

Only 6890A and 6890 Plus GCs can use GPIB with the appropriate communications card installed.

Data acquisition limitations

The MSD ChemStation software requires that:

- Each GC/MSD use the same communication method (for example, you cannot use a LAN GC with a GPIB MSD).
- You acquire data from only<u>one</u> GPIB instrument or system at a time. You cannot acquire LAN data while acquiring GPIB data.

Other Documentation

Additional information is contained in the following documentation:

- MSD ChemStation online help
- Agilent GC/MSD ChemStation Getting Started Manual
- Drug Analysis Software Getting Started Manual
- For an Agilent 5975 Series MSD:
  - 5975 Series MSD Site Preparation Guide
  - 5975 Series MSD Hardware Installation Manual
  - 5975 Series MSD Hardware Manual
  - MSD Local Control Panel (LCP) Quick Reference
- For an Agilent 5973 Series MSD:
  - MSD Quick Reference
  - 5973 Series MSD Hardware Manual
  - 5973 Series MSD Hardware Installation Manual
  - Local Control Panel Quick Reference
  - Custom Reports Getting Started Manual
  - G2570A 6850 GC/MSD System Setup and Installation Manual

Product Update News

For the most current information on the MSD Productivity ChemStation software, use your web browser to access http://www.agilent.com. Look under Life Sciences and then Technical Support. You must enter your product registration number to access the Software Status Bulletin information.

2
Local Area Network Configuration

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Configuring the LAN Network 30
Configuring IP Addresses from Instrument Keyboards 34
Installing Agilent I/O Libraries (SICL Drivers) for TCP/IP Support 38

This chapter describes how to install the MSD Productivity ChemStation software for use with the following LAN-based instruments:

- 5975 or 5973 Series MSD
- 6890 or 6850 GC with LAN capability

The checklist on the next page summarizes steps required for installation and configuration of the MSD ChemStation software for LAN-based instruments. More information for each step required to configure the LAN is given in the remainder of this Chapter.

See also Chapter 5, “Installing Agilent MSD Productivity ChemStation Software”.

If you have a GPIB-based system, skip this chapter and go to Chapter 4.

Local Area Network Configuration Checklist and Table

Use this checklist to install and configure the GC and MSD on a LAN.

Step 1: Prepare the computer

- ❑ Determine the IP addresses to use for the ChemStation computer and for each GC and MSD and record them.

Unit	Computer	Instrument 1 GC	Instrument 1 MSD
Model			
Serial number			
MAC address			
Host name			
IP address	10.1.1.100	10.1.1.101	10.1.1.102
Hub port (default)	3	2	1
Subnet mask	255.255.255.0	255.255.255.0	255.255.255.0
Default gateway	10.1.1.100	10.1.1.100	10.1.1.100

Unit	Instrument 2 GC	Instrument 2 MSD	Instrument 3 GC	Instrument 3 MSD
Model				
Serial number				
MAC address				
Host name				
IP address				
Hub port (default)				

Unit	Instrument 4 GC	Instrument 4 MSD
Model		
Serial number		
MAC address		
Host name		
IP address		
Hub port (default)		

- ❑ Determine the network subnet mask.
- ❑ Verify that Microsoft Windows XP Professional or Microsoft Windows 2000 Professional is the operating system.
- ❑ Verify that Service Pack 2 is installed for Microsoft Windows XP Professional, or Service Pack 4 is installed for Microsoft Windows 2000 Professional.
- ❑ Install the Network Interface Card in the ChemStation computer if it is not installed. Remember to follow all electrostatic discharge safety precautions.

NOTE If you will be using a second network card to connect to the site network, it should NOT be physically present in the PC until after configuration and checkout as a standalone network.

- ❑ Install and configure TCP/IP on the computer if it is not installed (Microsoft Windows 2000 only).

Step 2: Prepare the GC

- ❑ Install an MIO JetDirect card in the 6890 (not 6890N) GC.
- ❑ Install an MIO JetDirect card in the 6850 (serial number ≤US00003200) GC.

Step 3: Create the LAN

- Connect a LAN cable from the switch/hub to the GC. Do not use a crossover cable. Do not use port 8 if you are using a hub.
- Connect a LAN cable from the switch/hub to the MSD. Do not use a crossover cable. Do not use port 8 if you are using a hub.
- Connect a LAN cable from the switch/hub to the computer. Do not use a crossover cable. Do not use port 8.

Step 4: Configure the computer and instruments

- **Computer:** Configure the computer IP address and subnet.
- **6890N, 6850 Network, and 6850 Series II GC:** Configure IP address and subnet address via the front panel.
- **6890 and 6850 GC with JetDirect card:** Install Agilent Bootp Service to assign IP addresses. Add Bootp entry for GC.
- **5975 and 5973 MSDs:** Assign the IP address via the keyboard, or install Agilent Bootp Service to assign IP addresses. If using Bootp, add a Bootp entry for the MSD.

Step 5: Install and configure SICL LAN drivers.

Step 6: Install and configure the Agilent MSD Productivity ChemStation software as described in Chapter 5.

Step 7: Download firmware drivers to the LAN/MS Control Card, if needed.

Step 8: Start up each instrument session to confirm operation.

Preparing the Instruments

Agilent Technologies 5975 and 5973 Series MSDs have an integrated LAN interface within each instrument. The GC may have an integrated LAN interface (such as the 6890N or any 6850 GC), or may be upgraded to LAN capability (6890A or 6890 Plus). To configure a GC/MSD system, both the GC and the MSD must have a LAN interface. An older 5973 MSD system with a 6890 Series GC must use GPIB communications if not upgraded to LAN-based communication.

Designing the LAN instrument network

Before connecting any network cables and installing the MSD ChemStation software, the MSD ChemStation network will be an isolated local network. An isolated local network is easier to configure and to verify. Even if the system is going to be hooked up to your site LAN, it must be qualified first as a local network. Refer to "5975 and 5973 Series MSD LAN system" on page 89 for more information on how to integrate the instrument network into your site LAN.

Cabling the LAN instrument network

To connect more than one instrument to the MSD ChemStation, connect a standard (not crossover) EtherTwist cable from the network interface connectors on each instrument and the MSD ChemStation computer to the switch/hub. Do not use the cascade port or port 8 on the hub. See Figure 1.

NOTE If the Cascade port is to be used later to connect the hub to the site LAN, then port 8 must be left open.

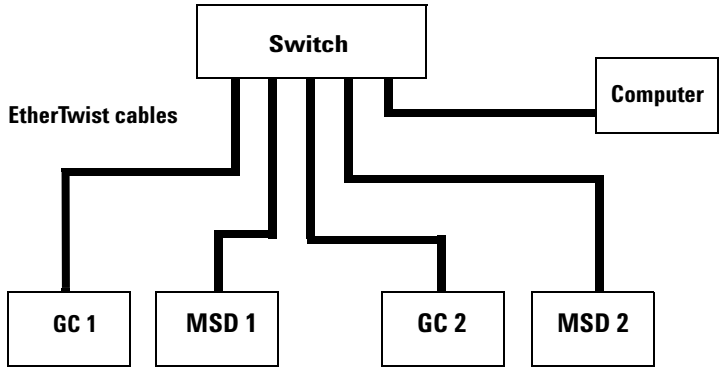


Figure 1 Example LAN connections for a 2-GC, 2-MSD configuration

Configuring the LAN instrument network

For isolated instrument networks, the IP addresses do not need to conform to any pattern. It is recommended that the first segment of the IP addresses be 10, as this number indicates that the address is an unassigned or public address. The first three segments in the IP addresses of the instruments and the MSD ChemStation computer must be the same, and the last segment must be different for each node and be in the range from 1 to 254. For example, the following IP addresses represent a typical isolated instrument network:

MSD ChemStation computer	10.1.1.100
GC instrument	10.1.1.101
MSD instrument	10.1.1.102

The subnet mask must be the same for all nodes on the local instrument network (typically: 255.255.255.0). For an isolated instrument network, which is not connected to the site LAN, no default gateway is used.

NOTE

If using Bootp service: Once the IP addresses are assigned, you can specify a host name for each node. While host names are optional, they are easier to identify than IP addresses. Host names are associated with instruments during Agilent Bootp Service configuration described later in Chapter 3. Host names are not required for operation of the GC/MS system.

Configuring the LAN Network

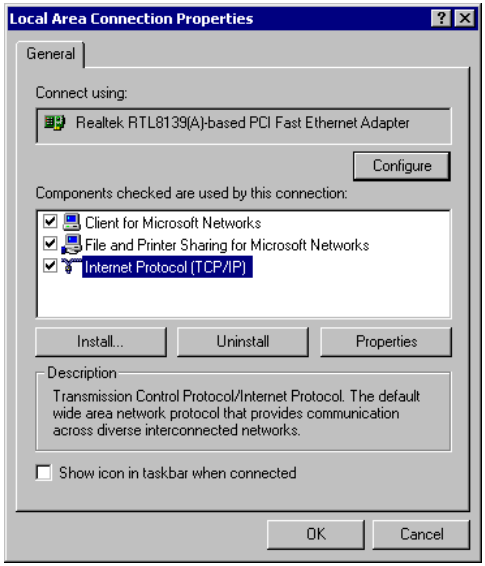
The following procedure describes how to set up Windows 2000 or XP networking. Have your original Windows 2000 or XP CD-ROM available as you might be prompted to place it in the drive. The network card must be installed prior to installation of TCP/IP drivers, otherwise an error is reported and the process terminated.

NOTE There are small appearance differences between Windows 2000 and Windows XP but content and functions in the following figures are similar for either operating system.

1. Start up your computer and Windows 2000 or XP.
   Log on as Administrator or other user with Administrator privileges.
2. Create the network connection. Open the control panel by selecting **Start/Settings (Windows 2000)/Control Panel**.
   - On Control Panel, double-click **Network Connections** (Windows XP users) or **Network and Dial-up Connections** (Windows 2000 users).
   - Right-click **Local Area Connection** and select **Properties**. The **Local Area Connection Properties** dialog box appears.

   If **Local Area Connection** does not appear after double-clicking **Network Connections**, the Network Interface Card is not installed or detected. Shut down the computer, install the card, and start over.

3 Select **Internet Protocol (TCP/IP)** and click **Properties**. The **Internet Protocol (TCP/IP) Properties** dialog box appears.

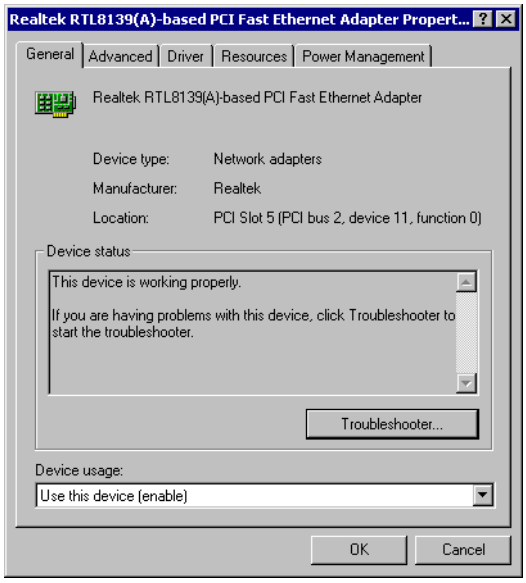


4 Set the **IP address** and **Subnet Mask** by clicking **Use the following IP address**.

- Enter the **IP address**, **Subnet Mask**, and **Gateway** to be used for the computer. The default IP address is 10.1.1.100; the default Subnet Mask is 255.255.255.0; and the default Gateway is 10.1.1.100.
- Click **OK**; the **Local Area Connection Properties** dialog box appears.

5 In the **Local Area Connection Properties** dialog box, click **Configure** and respond **Yes** to the popup message.

- The **General** tab of the Ethernet Adapter appears. The **General** field should state that **This device is working properly**. If it does not, click **Troubleshooter** for online help. Do not change the default settings.

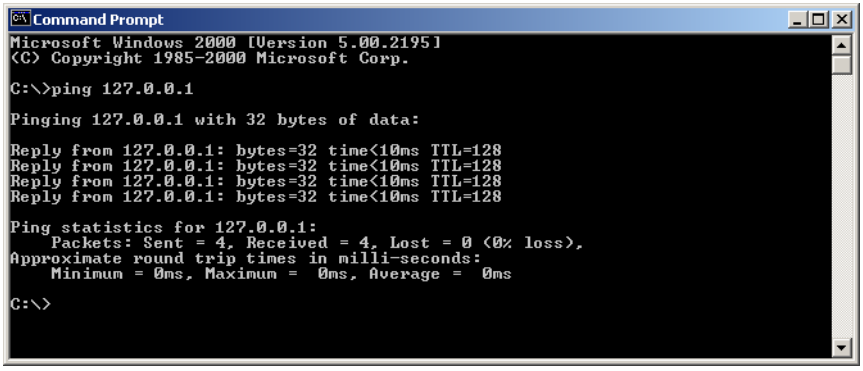


- Click the **Resources** tab. If any device conflict exists, they will be identified in the lower field.
- Click the **Power Management** tab. In the dialog box that appears, clear/uncheck the **Allow the computer to turn off this device to save power** checkbox and click **OK**.

6 To verify the network installation and configuration:

- From the Windows **Start** menu, select **Run**. Type `cmd` and click **OK**. The Command window opens.
- In the Command Prompt window, if necessary, change to the C:\ directory, type `ping 127.0.0.1`, and press **Enter**. If successful, a message like the one in the example below appears. If not successful, TCP/IP is not configured.

NOTE The 'ping' command should always be run from the **C:** command prompt.



7 Close all windows.

Configuring IP Addresses from Instrument Keyboards

When entering an IP address at an instrument, be sure it is correct and is not in use by another device (such as a printer).

6890N GC

The Agilent 6890N GC communicates with a ChemStation via the LAN. It does not require or use Bootp Service software. Set its IP address at the instrument.

This procedure applies only when adding a 6890N GC. On a multi-instrument system where Bootp Service is already installed to provide IP addresses to instruments, Bootp should remain installed and enabled.

To enter the IP address into a 6890N GC:

1 On the 6890N keyboard, press **[Options]**. Scroll to **Communication** and press **[Enter]**. The following screen appears:

```
COMMUNICATION SETPTS

---- LAN ----

IP: 000.000.000.000 <

GW: 000.000.000.000

SM: 000.000.000.000

Enable DHCP OFF

---- RS-232 ----
```

2 Enter the IP address for your 6890N GC. Enter the numbers separated by dots and press **[Enter]**. The GC displays a message instructing you to power cycle the instrument. Do NOT power cycle yet.

3 Press **[Clear]**. Scroll to **GW**. Enter the Gateway number and press [**Enter]**. The GC displays a message instructing you to power cycle the instrument. Do NOT power cycle yet.

4 Press **[Clear]**. Scroll to **SM** and press **[Mode/Type]**. Scroll to the appropriate subnet mask from the list of modes and press

[**Enter**]. The GC displays a message instructing you to power cycle the instrument.

5 Power cycle the instrument to apply the LAN setpoints to the card.

6 Press [**Options**]. Scroll to **Communications** and press [**Enter**]. Confirm that the correct setpoints are present.

6850 GC

The Agilent 6850N/6850 Series II GC communicates with a ChemStation via the LAN. It does not require or use Bootp Service software. Set its IP address at the instrument. On a multi-instrument system where Bootp Service is already installed to provide IP addresses to instruments, Bootp should remain installed and enabled.

To enter the IP address into a 6850 GC:

1 Turn the GC off.

2 Press and hold **LOAD** and turn the GC on. Continue to hold **LOAD** until five dots appear in the GC display.

3 When the GC finishes initializing, the display should read:

DHCP mode	**or**	**IP Address**
DISABLED		**XXX.XXX.XXX**

If the **DHCP MODE** is **ENABLED**, change the mode to **DISABLED** by pressing ▲ or ▼.

Press **LOAD** to continue to the **IP ADDRESS**.

If the GC does not display either of the above two screens, your GC uses card J2552B or card J4100A and firmware that does not support local IP addressing. If this is the case, either update the firmware or use Agilent Bootp Service to obtain the IP address.

4 The display will now read:

IP ADDRESS
XXX.XXX.XXX

5 Press **LOAD** to adjust the **IP ADDRESS** values. Press ▲ or ▼ to change values and **LOAD** to move from one value to the next.

6 When **IP ADDRESS** is completed, the display reads:

DEFAULT GATEWAY
XXX.XXX.XXX.XXX

Change the **DEFAULT GATEWAY** as you did the **IP ADDRESS**.

7 Change the **SUBNET MASK** value in the same manner.

8 Cycle the GC power for new settings to take effect.

5975 or 5973 Series LAN-based MSD with a local control panel

To set the IP addresses for a 5975 or 5973 Series MSD from the instrument:

1 When a 5975 or 5973 Series MSD is initially turned on, it will look for Bootp Service. To disable the Bootp Service/Server query, hold down the **[No/Cancel]** key on the local control panel for approximately 5 seconds.

You will see a display that Bootp has been disabled and that firmware is being downloaded.

2 On the local control panel, press **[Menu]** until the Network menu is displayed and then press **[Item]**.

The default IP address will be `0.0.0.0` if the Bootp Service was aborted or `10.1.1.102` if the IP address was downloaded from the Bootp Service:

MSD IP via Bootp Service

0.0.0.0

3 To assign a new IP address without using Bootp Service, press the **[Yes/Select]** key on the local control panel.

The following is displayed and you can update the first numbers of the IP address:

EDIT MSD IP

>000<000.000.000

4 Enter the new IP address.

- Use the up arrow key to increase the value.
- Use the down arrow key to decrease the value.

- Use the **[Item]** key to move to the next group of numbers to edit.
- When you have finished entering all the numbers for the IP address, press the **[Yes/Select]** key to temporarily save the IP address (the IP address is permanently saved when you update the flash memory below).

5 Press the **[Item]** key to edit the Gateway IP and/or subnet mask. Press **[Yes/Select]** to edit or **[Item]** to go to the next item.

6 Press **[Item]** until you see the prompt **Reboot with new network settings?** or **Cycle MSD power now to activate changes**.

7 If you see **Reboot with new network settings**, press **[Yes/Select]**.

If you see **Cycle MSD power now to activate changes**, manually power cycle the MSD.

Installing Agilent I/O Libraries (SICL Drivers) for TCP/IP Support

The Standard Instrument Control Library (SICL) drivers are supplied on the MSD ChemStation software CD-ROM. If a previous version of the SICL drivers has been installed, remove it, then install the supported version.

Drivers are provided to support either a LAN-based system or a GPIB-based system:

- If your system is LAN-based, continue with this section to install drivers for TCP/IP support.
- If your system is GPIB-based, skip this section and continue to Chapter 4 where installation of the appropriate GPIB drivers is described.

NOTE There are small appearance differences between Windows 2000 and Windows XP but content and functions in the following figures are the same for either operating system.

1. Close any Windows applications that are running.
2. Insert the MSD ChemStation CD-ROM into the drive.

   If it does not start automatically, double-click **Index.htm** in the root directory of the CD-ROM. Click a language to proceed to the Welcome screen. The Agilent Welcome Screen appears.
3. Go to the **Support** page and click **Install Agilent I/O Libraries (SICL Drivers) M.01.01.04**.
4. The Agilent IO Libraries screen appears; click **Next>**.
5. Read the Agilent IO Libraries License Agreement. When finished, click **Yes**.
6. Read the Agilent IO Libraries Readme Information. When finished, click **Next>**.

7 Click **Full Installation** to select the type of installation.

8 Components to be installed are listed. Click **Next>** to accept the list and to proceed with installation.

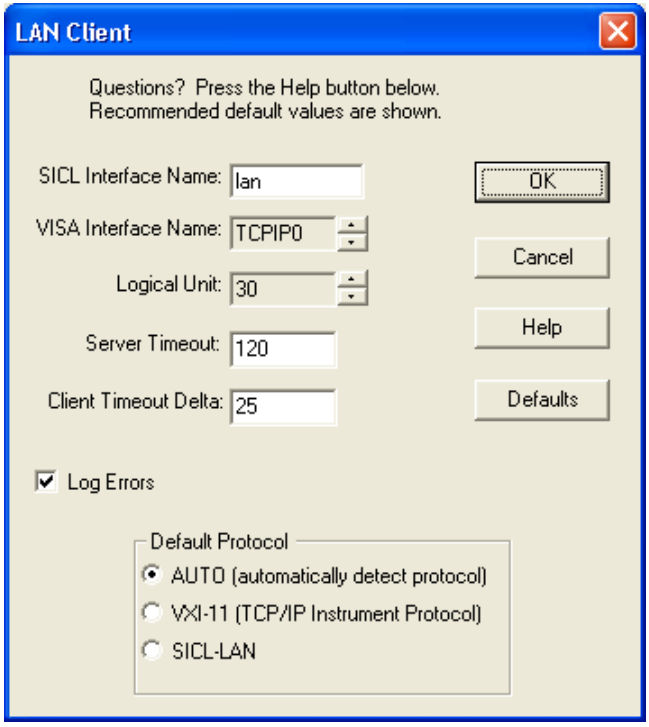
9 After files are copied, you are prompted to decide if you want to view information and/or to run IO Configuration. Select **Run IO Config** and click **Finish** to next configure SICL support.

If prompted, select **Manually configure interfaces** and click **Next>**.

10 The **Agilent IO Libraries Configuration - IO Config** screen appears.

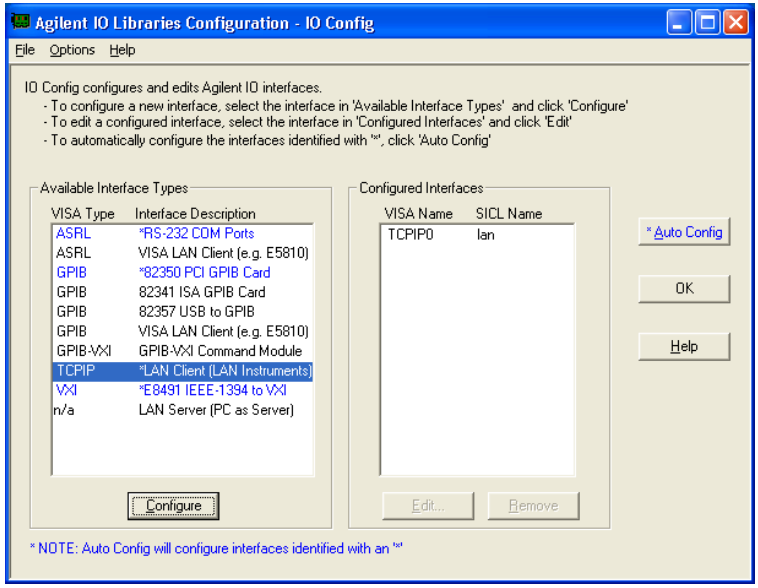
11 Select **TCPIP *LAN Client (LAN Instruments)**.

12 Click **Configure** to manually configure this interface. The following screen appears:



13 For the Default Protocol at the bottom of the screen, select **SICL-LAN**. Click **OK** to accept the settings.

14 The resulting screen confirms TCP/IP configuration. Note that **TCPIP0 lan** appears in the **Configured Interfaces** box. Click **OK** to finish the process.


Agilent IO Libraries Configuration - IO Config
File Options Help
IO Config configures and edits Agilent IO interfaces.
- To configure a new interface, select the interface in 'Available Interface Types' and click 'Configure'
- To edit a configured interface, select the interface in 'Configured Interfaces' and click 'Edit'
- To automatically configure the interfaces identified with '*', click 'Auto Config'
Available Interface Types
VISA Type Interface Description
ASRL *RS-232 COM Ports
ASRL VISA LAN Client (e.g. E5810)
GPIB *82350 PCI GPIB Card
GPIB 82341 ISA GPIB Card
GPIB 82357 USB to GPIB
GPIB VISA LAN Client (e.g. E5810)
GPIB-VXI GPIB-VXI Command Module
TCPIP *LAN Client (LAN Instruments)
VXI *E8491 IEEE-1394 to VXI
n/a LAN Server (PC as Server)
Configure
Configured Interfaces
VISA Name SICL Name
TCPIP0 lan
Edit... Remove
* Auto Config
OK
Help
* NOTE: Auto Config will configure interfaces identified with an '*'

15 LAN support from the IO Libraries is now configured. Remove the CD from the drive and reboot your PC to ensure all support settings are made permanent.

To run IO Config at a later time, either

- Click on the **IO** icon in the task bar of your PC and select **Run IO Config**, or
- Select **(All) Programs/Agilent IO Libraries/IO Config** from the Windows **Start** menu.

3
Installing Agilent Bootp Service

Purpose 42
Installation 43
Initial Instrument Setup on Agilent Bootp Service 46
Adding Instruments After Initial Bootp Setup 49

Agilent Bootp Service software is only required for older GCs (6890 and 6850 GCs with a JetDirect card installed). If desired, it can assign IP addresses to the 5975 and 5973 Series MSDs with LAN communications.

Agilent Bootp Service **cannot** be used with 6890N GC or with 6850 GCs with serial number ≥US10243001.

Purpose

Agilent Bootp Service provides central administration of IP addresses for Agilent instruments residing on a LAN. This service can run on any Windows 2000 or XP PC on the instrument LAN. The PC running Agilent Bootp Service must be running TCP/IP network protocol and cannot run a DHCP server or another Bootp server.

How Bootp works

When an instrument is first powered on, an Agilent JetDirect card, located in the instrument, broadcasts a request for an IP address or Host Name and provides its hardware address as an identifier. The request may continue for up to 5 minutes. The Agilent Bootp Service can answer this request and pass a previously-defined IP address and Host Name associated with the hardware address to the requesting instrument.

When the instrument receives its IP address and Host Name from the Bootp Service, it stops broadcasting the request. The instrument maintains the IP address as long as it is powered on. Powering down the instrument causes it to lose its IP address and the Agilent Bootp Service must be running when the instrument is next powered on to reestablish the correct address.

Addresses

Prior to installing and configuring Bootp service, you need to know the IP addresses of the computer and the instruments, the subnet mask, and the gateway.

For initial installation, use the following default addresses:

Device	Address
PC	10.1.1.100
GC	10.1.1.101
MSD	10.1.1.102
Gateway	10.1.1.100
Subnet mask	255.255.255.0

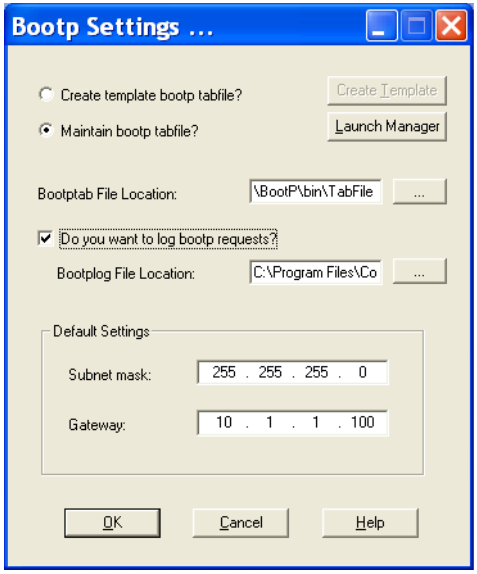
Increment the IP addresses as needed for additional instruments.

Installation

To install the Agilent Bootp Service:

1. Log onto the computer as Administrator or other user with Administrator privileges.
2. Close all Windows programs.
3. Insert the MSD Productivity ChemStation Software CD into the CD-ROM drive. If it does not start automatically, double-click **Index.htm** in the root directory of the CD-ROM.
4. Click a language to proceed to the Welcome screen. The Agilent Welcome screen appears.
5. Go to the **Support** page and click **Install Agilent Bootp Service**.
6. If necessary, click the **Agilent Bootp Service...** icon in the taskbar.
7. The Welcome screen appears. Click **Next>**.
8. After reviewing the License Agreement, click **Yes** to continue and install Agilent Bootp Service.
9. The Agilent Bootp Service README is available for printing. It can be accessed from **C:\Program Files\Common Files\Agilent Shared\Bootp\bin\Readme.htm**.
10. Files load. When finished, the “Install Wizard Complete” screen, the **Bootp Settings** screen, and the README all appear.
11. Close the README file after reading it. Be sure you know where you saved the file.

12 At this time, the **Bootp Settings** screen shows unconfigured default settings.



13 Select **Maintain bootp tabfile**.

14 Check **Do you want to log Bootp requests?**

NOTE This box will be unchecked when finished configuring instruments or the logfile will quickly fill up disk space.

15 In the **Default Settings** part of the screen, enter the subnet mask and gateway. Entries in the screen above are the default subnet mask and gateway.

- See your network administrator if you do not know the subnet mask and gateway.
- The default subnet mask is 255.255.255.0.
- The default gateway is 10.1.1.100.

16 In the “Install Wizard Complete screen, select **Yes, I want to restart my computer now**, remove the CD-ROM from the drive, and click **Finish**.

This completes Bootp Service installation. After rebooting your PC, Bootp must be configured as described in the next section.

Initial Instrument Setup on Agilent Bootp Service

Agilent Bootp Service maintains association between a unique identification code (MAC address) provided with the LAN card installed in a given instrument and the specific IP address assigned to that instrument. Therefore, whether adding a new instrument, exchanging an instrument (or its LAN card), or changing the IP address assigned to an instrument, all require defining or redefining this association.

Determine the MAC address of the instrument

1 Determine the MAC address of the GC with the JetDirect card installed **EITHER** using Agilent Bootp Service's logfile or by examining the card.

Using Agilent Bootp Service's logfile

a Turn off the MSD.

- Since the logfile lists all Bootp requests, start one device at a time to distinguish between them.

b Power cycle the GC.

c After the GC completes self-test, open the logfile using Notepad. The contents will be similar to that shown below.

- The default location for the logfile is **My Computer\Local Disk\Program Files\Common Files\Agilent Shared\Bootp\bin\logfile**.
- The logfile will not update if it is open.

02/25/04 15:30:49 PM
Status: BOOTP Request received at outer most layer
Status: BOOTP Request received from hardware address: 0010835675AC
Error: Hardware address not found in BOOTPTAB: 0010835675AC
Status: BOOTP Request finished processing at outer most layer

d Record the MAC address (0010835675AC, here called the hardware address).

e Close the logfile, then turn on the MSD

Examining the JetDirect card

a Turn off the GC.

b Remove the JetDirect card.

CAUTION Use a grounded wrist strap and connect it to a bare metal surface of the GC to avoid damaging the PC board electronics.

c Read the MAC address from the label. The MAC address is printed on a label on the noncomponent side of the JetDirect card. It is the number *below* the barcode and *after* the colon (:) and usually begins with the letters **AD**.

d Reinstall the card and turn on the GC.

Reading the MSD Local Control Panel

2 Determine the MAC address of the MSD. On the Local Control Panel, press the **[Menu]** key to get to **Network**, then press **[Item]** to get to **MAC address**. Record the MAC address.

- The displayed colons (:) are not part of the address.
- Alternatively, read the MAC address from the logfile as described in step 1 above.

Add Bootp entries

1 From your Windows desktop Start button, select **Start**/ **Settings (Windows 2000)**/ **Control Panel**/**Administrative Tools**/**Services**. The Service screen appears.

2 Right-click **Agilent Bootp Service.**

3 Select **Stop**.

4 After stopping Bootp service, close the Services and Administrative tools screens.

5 Add the GC to the network.

   a Follow **Start/Programs/Agilent Bootp Service/Edit Bootp Settings**; the Bootp Settings screen appears.

   b Uncheck **Do you want to log Bootp requests?**

   c Click **Launch Manager**. The Bootp Manager screen appears.

   d Click **Add...** The **Add Bootp Entry** screen appears.

   e Make these entries for the GC:

   - MAC Address
   - Host Name
   - IP Address
   - Comment, if desired
   - Subnet Mask
   - Gateway address

   f Click **OK**.

6 Add the MSD to the system. Repeat step 5 to add the MSD.

7 When finished, click **Exit Manager**, then click **OK**.

8 Select **Start**/**Settings (Windows 2000)**/**Control Panel**/ **Administrative Tools**/ **Services**. The Service screen appears.

9 Right-click on **Agilent Bootp Service**.

10 Select **Start** to restart Bootp service.

11 Close the Services and Administrative Tools screens.

12 Power cycle the GC and add MSD to implement the changes.

   - For the MSD, alternatively, press the **[Item]** key until you see **Reboot with new network settings?** Press **[Yes/Select]** to reboot the MSD.

13 Ping the IP addresses to verify.

Adding Instruments After Initial Bootp Setup

It is possible to add instruments to Agilent Bootp Service any time after you have completed the initial Bootp setup.

If you know the MAC address

If at a later time you wish to add another instrument and you know the MAC address:

1. From your Windows desktop Start button, select **Start**/**Settings (Windows 2000)**/**Control Panel**/**Administrative Tools**/**Services**. The Service screen appears.
2. Right-click **Agilent Bootp Service.**
3. Select **Stop**.
4. After stopping Bootp service, close the Services and Administrative tools screens.
5. Add the instrument to the network.
   a. Follow **Start/Programs/Agilent Bootp Service/Edit Bootp Settings**; the Bootp Settings screen appears.
   b. Uncheck **Do you want to log Bootp requests?**
   c. Click **Launch Manager**. The Bootp Manager screen appears.
   d. Click **Add...** The **Add Bootp Entry** screen appears.
   e. Make these entries for the GC:
      - MAC Address
      - Host Name
      - IP Address
      - Comment, if desired
      - Subnet Mask
      - Gateway address
   f. Click **OK**.
6. When finished, click **Exit Manager**, then click **OK**.
7. Select **Start**/**Settings (Windows 2000)**/**Control Panel**/**Administrative Tools**/ **Services**. The Service screen appears.

8 Right-click on **Agilent Bootp Service**.

9 Select **Start** to restart Bootp service.

10 Close the Services and Administrative Tools screens.

11 Power cycle the new instrument to implement the changes.

- For an MSD, alternatively, press the **[Item]** key until you see **Reboot with new network settings?** Press **[Yes/Select]** to reboot the MSD.

12 Ping the IP address to verify.

If you do not know the MAC address

If you wish to add another instrument to the Agilent Bootp Service but you do not know the MAC address:

1 From your Windows desktop Start button, select **Start**/**Settings (Windows 2000)/Control Panel**/**Administrative Tools**/**Services**. The Service screen appears.

2 Right-click **Agilent Bootp Service.**

3 Select **Stop**.

4 After stopping Bootp service, close the Services and Administrative tools screens.

5 Follow **Start/Programs/Agilent Bootp Service/Edit Bootp Settings**; the Bootp Settings screen appears.

6 Check **Do you want to log Bootp requests?** and click **OK**.

7 Start the Agilent Bootp Service from the same menu you used to stop it (only this time, select **Start**).

8 After you have completed the steps above, see “Determine the MAC address of the instrument” on page 46 and follow the steps to the end.

4
GPIB Driver Installation

Installation Checklist for GPIB-Based Systems 52
Installing Agilent I/O Libraries for GPIB Support 53

This chapter describes how to install and configure GPIB drivers required for 5973A MSDs and/or GPIB-based 6890A/Plus GC instruments.

Installation Checklist for GPIB-Based Systems

This checklist summarizes the installation and configuration steps for GPIB-based systems (5973 MSD and/or 6890 GC).

- ❑ Verify operating system prerequisites described in Chapter 1.
- ❑ Verify that an 82350B GPIB card is installed in the ChemStation computer. Install if needed.

NOTE Some PCs may require the 10834-2310 GPIB adapter connector to extend the GPIB from the back of the PC.

- ❑ Design the GPIB instrument system.

  It is best to connect GPIB devices in a “chain” where a GPIB device is connected to the next GPIB device, and it, in turn, is connected to the next, and so on. If at all possible, avoid “star” configurations (connecting all devices to a central point).

- ❑ Install and configure GPIB SICL drivers from the Agilent MSD Productivity ChemStation CD-ROM.

Installing Agilent I/O Libraries for GPIB Support

The Standard Instrument Control Library (SICL) drivers are supplied on the MSD ChemStation software CD-ROM. If a previous version of the SICL drivers have been installed, they should be removed prior to the installation of the current version.

- If your system is GPIB-based, continue with this section to install drivers for GPIB support.
- If your system is LAN-based, skip this section and go to Chapter 2 where installation of the appropriate TCP/IP drivers is described.

NOTE

A GPIB card must be installed in your PC or installed drivers cannot be configured. GPIB SICL drivers must be the version provided on the MSD ChemStation software CD-ROM.

If your PC is being rebooted following installation of a GPIB card, the Found New Hardware Wizard screen will appear. **If the New Hardware Wizard starts, click Cancel to immediately exit.**

Install and configure GPIB support

1. Close any Windows applications that are running.
2. Insert the MSD ChemStation CD-ROM into the drive. If it does not start automatically, double-click **Index.htm** in the root directory of the CD-ROM.
3. Click a language to proceed to the Welcome screen. The Agilent Welcome screen appears.
4. Go to the **Support** page and click **Install Agilent SICL Drivers M.01.01.04**.
5. A Welcome menu is displayed upon starting Agilent IO Libraries installation. Click **Next>** to continue with the installation.
6. After reviewing the License Agreement, click **Yes**.
7. The Readme Information screen appears; click **Next>**.

8 Click **Full Installation**. Components to be installed are listed. Click **Next>** to accept the list and to proceed with installation.

9 After files are copied, select **Run IO Config** and click **Finish** to next configure SICL support.

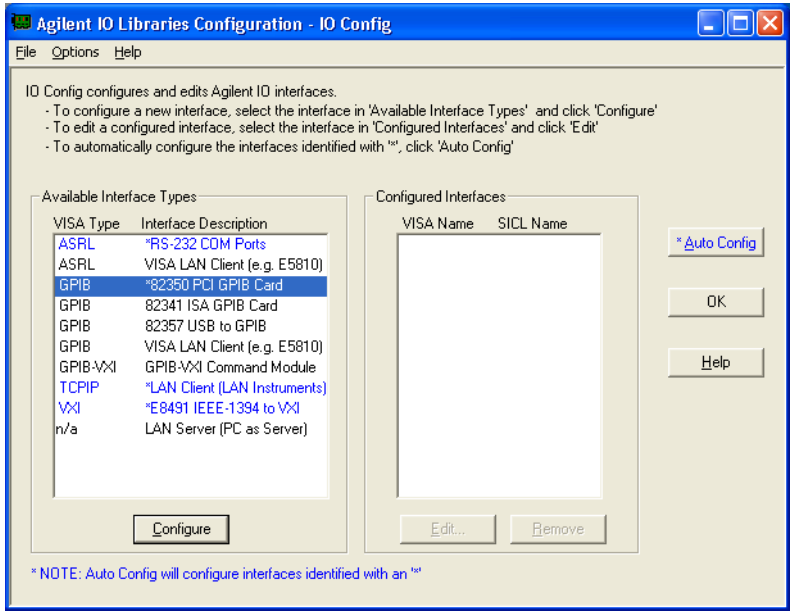
- If prompted, select **Manually configure interfaces** and click **Next>**.

NOTE

There are alternative ways of running IO Config at later times:

- By clicking on the IO icon in the task bar of your PC
- Or, from **Agilent IO Libraries** group found in **Start/(All) Programs**.

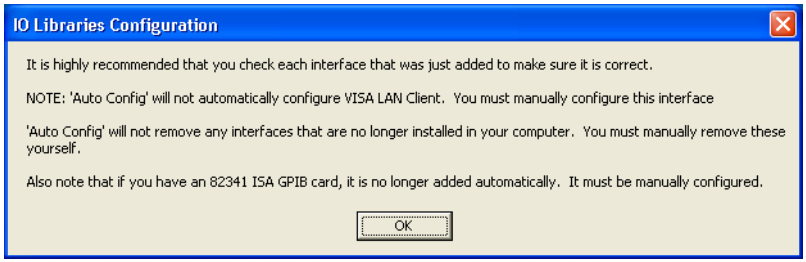
10 Select **GPIB *82350 PCI GPIB Card**.


Agilent IO Libraries Configuration - IO Config
File Options Help
IO Config configures and edits Agilent IO interfaces.
- To configure a new interface, select the interface in 'Available Interface Types' and click 'Configure'
- To edit a configured interface, select the interface in 'Configured Interfaces' and click 'Edit'
- To automatically configure the interfaces identified with '*', click 'Auto Config'
Available Interface Types
VISA Type Interface Description
ASRL *RS-232 COM Ports
ASRL VISA LAN Client (e.g. E5810)
GPIB *82350 PCI GPIB Card
GPIB 82341 ISA GPIB Card
GPIB 82357 USB to GPIB
GPIB VISA LAN Client (e.g. E5810)
GPIB-VXI GPIB-VXI Command Module
TCPIP *LAN Client (LAN Instruments)
VXI *E8491 IEEE-1394 to VXI
n/a LAN Server (PC as Server)
Configure
Configured Interfaces
VISA Name SICL Name
Edit...
Remove
* Auto Config
OK
Help
* NOTE: Auto Config will configure interfaces identified with an '*'

11 Click **Configure**.

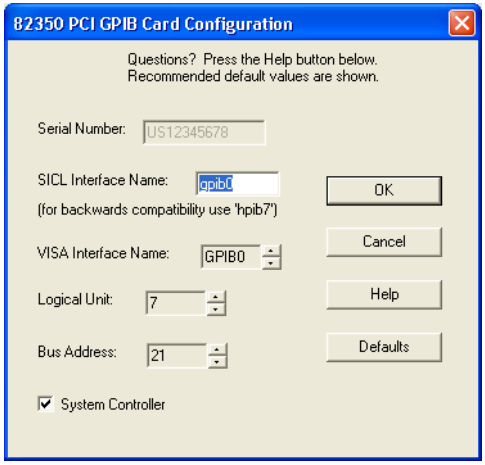
- The screen now contains a GPIB entry in the **Configured Interfaces** column.

- If the following message appears, click **OK** to show the IO Configuration screen.


IO Libraries Configuration
It is highly recommended that you check each interface that was just added to make sure it is correct.
NOTE: 'Auto Config' will not automatically configure VISA LAN Client. You must manually configure this interface
'Auto Config' will not remove any interfaces that are no longer installed in your computer. You must manually remove these yourself.
Also note that if you have an 82341 ISA GPIB card, it is no longer added automatically. It must be manually configured.
OK

12 In the **Configured Interfaces** column, select **GPIB0**.

13 Click **Edit**. The GPIB Card Configuration screen appears:



NOTE The MSD ChemStation requires use of the 82350B card though the MSD Productivity Software uses the SICL Interface Name, “hp82341”.

14 Change the **SICL Interface Name** to **hp82341** (“hp” MUST be lower case) and, using the scroll arrows, change the **Bus Address** to **30**.

15 Click **OK** to accept the changes. Configuration is complete.

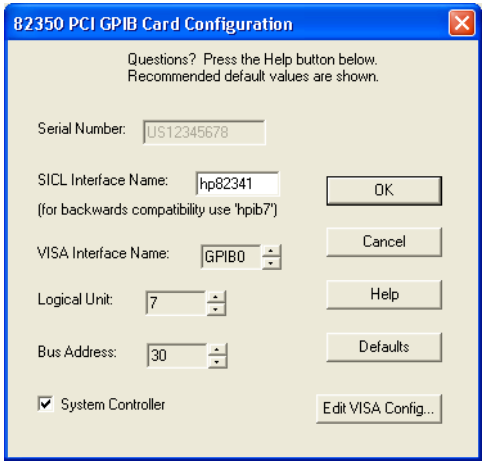
16 Reboot the computer to make the support settings permanent.

Check your work

1 Follow **Start/Programs /Agilent IO Libraries/IO Config** to verify the configured GPIB interface.

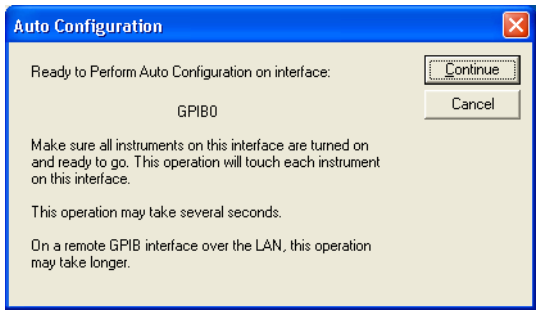
2 Select **GPIB0 hp82341** in the **Configured Interfaces** box.

3 Click **Edit**. The GPIB Card Configuration screen appears.



4 Click **Edit VISA Config**. The **Show Devices** screen appears.

5 Click the **Auto Add Devices**. The **Auto Configuration** screen appears.

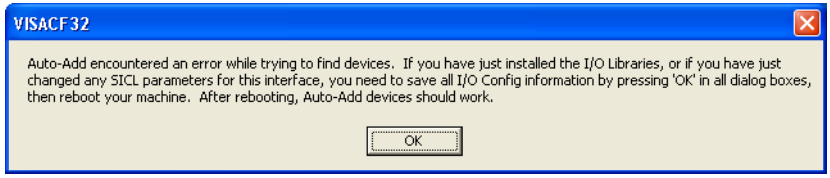

Auto Configuration
Ready to Perform Auto Configuration on interface:
GPIB0
Make sure all instruments on this interface are turned on and ready to go. This operation will touch each instrument on this interface.
This operation may take several seconds.
On a remote GPIB interface over the LAN, this operation may take longer.
Continue
Cancel

6 Click **Continue**.

7 If you get the following message, possible causes include:

- Incorrect GPIB card configuration
- GPIB cables not connected
- Instruments not turned on
- Unsupported hardware devices
- The PC needs to be rebooted

Power cycle the computer as the first step in troubleshooting.


VISACF32
Auto-Add encountered an error while trying to find devices. If you have just installed the I/O Libraries, or if you have just changed any SICL parameters for this interface, you need to save all I/O Config information by pressing 'OK' in all dialog boxes, then reboot your machine. After rebooting, Auto-Add devices should work.
OK

8 Review the results, then click **OK**. The new devices were found if auto configuration succeeds.

- **GPIB0::20** represents identification of the MSD (default address 20).
- **GPIB0::15** represents identification of the GC (default address 15).

9 Click **OK**. The **GPIB Card Configuration** screen appears.

10 Click **Cancel**. The **IO Config** screen appears.

- Note SICL Interface Name = hp82341 and Bus Address = 30.

11 Click **OK** to exit.

5
Installing Agilent MSD Productivity ChemStation Software

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Configuring the 5975 or LAN-capable 5973 Series MSD 65
Configuring the GPIB 5973 MSD 66
Configuring MSD options and polarity 69
Configuring the GC 70
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This chapter describes how to install and configure the MSD Productivity ChemStation software.

If you are upgrading the Agilent MSD Productivity ChemStation from an earlier version, see Chapter 6.

Required and Recommended Components

The MSD ChemStation software installation process prompts you for which example files you want to install. In this case, you are able to select **Example Mass Spectral Database** and/or **Example Methods and Data** for installation. Agilent highly recommends loading both of these features.

Installing Agilent MSD Productivity ChemStation Software

To install the MSD Productivity ChemStation Software:

1. Before you start:
   - Make sure the ChemStation computer has Windows 2000 or Windows XP software installed and configured as described in Chapter 1.
   - 5975 and LAN-capable 5973 Series MSDs: make sure the LAN is configured as described in Chapter 2 and Chapter 3.
   - 5973 MSD: make sure GPIB is configured as described in Chapter 4.
   - Close all Windows programs.
   - Log on as Administrator or other user with Administrator privileges.
2. Insert the G1701DA MSD ChemStation CD into the CD-ROM drive. If it does not start automatically, double-click the file **Index.htm** in the root directory of the CD-ROM.
3. Click a language to proceed to the Welcome screen. The Agilent Welcome screen appears.
4. Navigate to the **MSD ChemStation** page by clicking the link in the upper left corner under “Contents”. On the **MSD ChemStation** page, click the link **G1701DA MSD Productivity ChemStation, D.02.00**.
5. Choose a language and click **Next>**. The InstallShield Welcome screen appears.
6. Click **Next>** to continue to the License Agreement. Select **I accept the terms of the license agreement** and click **Next>.**
7. The Customer Information screen appears. Enter the necessary information and click **Next>**.

   Your registration number is on the software registration certificate provided in your software kit.

8 Click **Next>** to accept the customer information and to then choose where to install the MSD ChemStation software.

- Click **Next>** to accept the default target location, C:\MSDChem.
- Alternatively, use **Browse . . .** to select a different target location. Note that the ChemStation must be located on the same drive as the Agilent I/O Libraries (see Chapter 2 or Chapter 4).

9 The Select Features screen appears. Select the features you want to install and click **Next>**.

10 After verifying the installation to be performed, click **Install** to start the process.

11 Upon installation completion, remove the CD from the CD-ROM. Click **Finish** to complete the installation process and restart the computer.

Configuring Instruments in the MSD ChemStation

Use the following procedure to configure instruments in the MSD ChemStation software.

The System Configuration program allows you to configure instruments or to view instrument configuration information entered previously.

NOTE There are small appearance differences between Windows 2000 and Windows XP but content and functions in the following figures are the same for either operating system.

1 From the Windows Start Menu, open the MSD Configuration program.

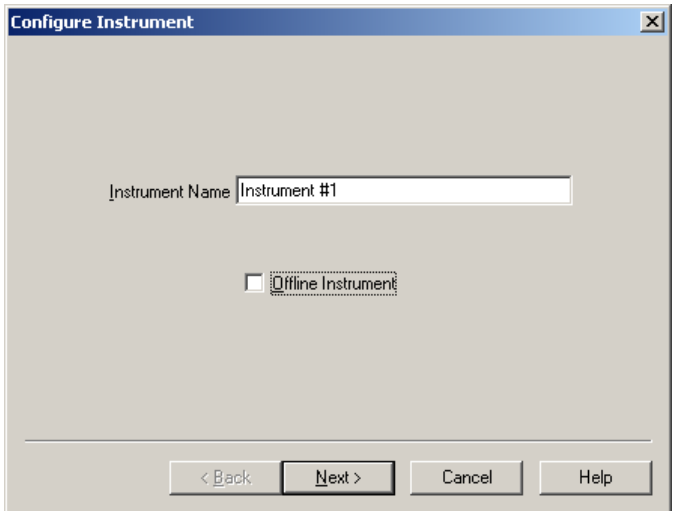
- Windows XP: Select **Start/All Programs/MSD ChemStation/Config**
- Windows 2000: Select **Start/Programs/MSD ChemStation/Config**

Alternatively, double-click the **Config** icon, , on your Windows desktop.

Either way, the System Configuration window appears.

NOTE If you do not see the Data Analysis column, your screen resolution is not set according to system requirements. Correct the problem before continuing.

2 If no instruments have yet been configured, the **Configure Instrument** dialog box shown below appears. Otherwise, to configure an instrument, select its number from the toolbar near the top of the window or from the Configure drop-down menu. This example describes initial installation where **Instrument 1** is automatically selected.



3 You can accept the default name or enter a different name for the instrument. Make sure the **Offline Instrument** option is **not** selected.

4 Click **Next>** to display the Mass Spectrometer dialog box.

5 Select the **Include a Mass Spectrometer in this Instrument Configuration** option and click **New MS Device**. The New Mass Spectrometer Device dialog box appears.

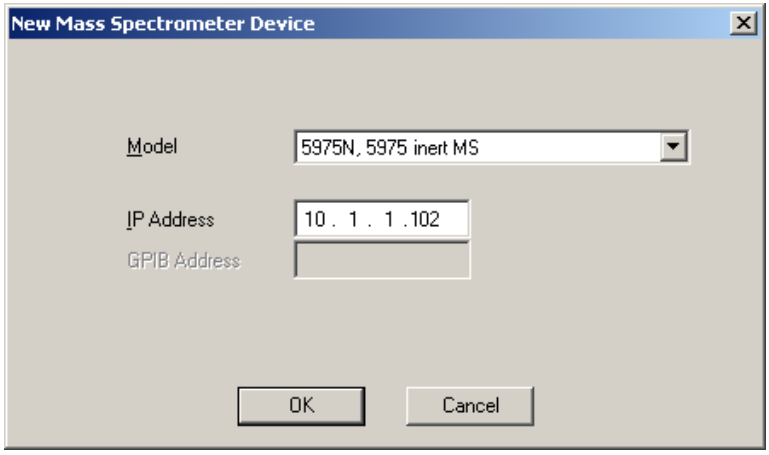
6 Select the Model number of your MSD and then enter the associated IP Address or GPIB Address following either of the next two procedures:

- "Configuring the 5975 or LAN-capable 5973 Series MSD" on page 65
- "Configuring the GPIB 5973 MSD" on page 66

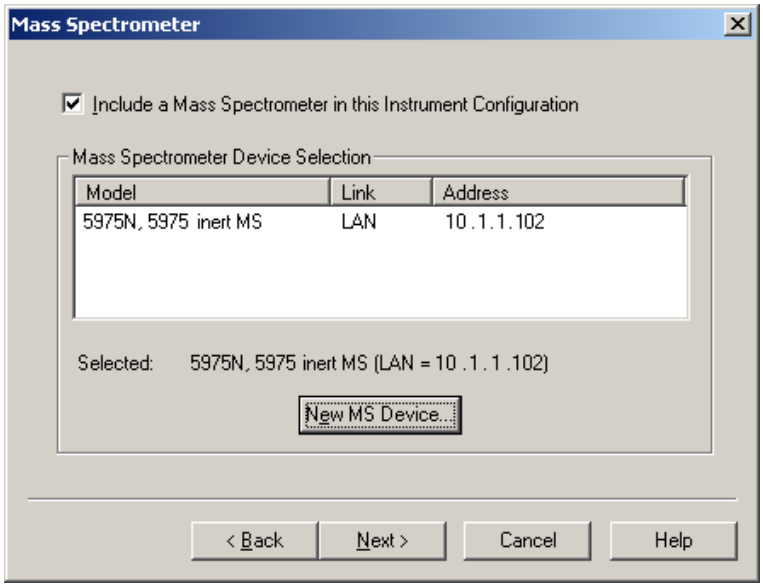
Configuring the 5975 or LAN-capable 5973 Series MSD

If your selected model is a 5975 or 5973 Series MSD, or a LAN-converted 5973A, then continue through the following procedure. If using GPIB communications for a 5973A, then go to the *next* section, "Configuring the GPIB 5973 MSD" on page 66, for the appropriate procedure.

1 Enter the MSD IP Address. For a MSD **not** on a site LAN system, this will be **10.1.1.102**. Click **OK** to accept the address:



2 Verify you have the correct MSD Model and IP Address:



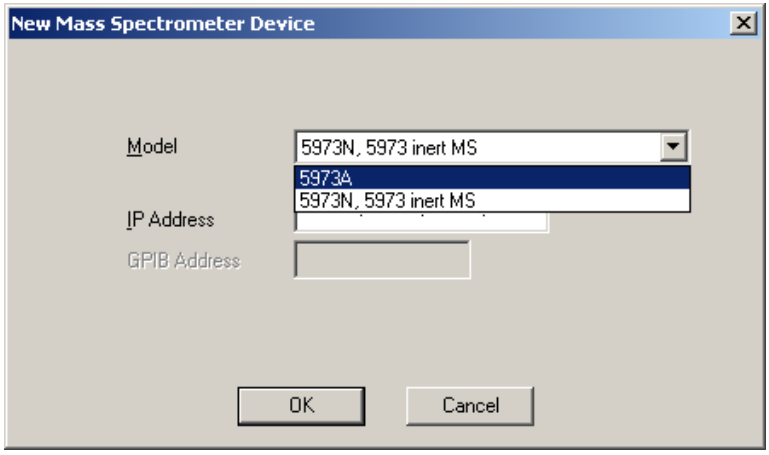
3 Click **Next>** and go to "Configuring MSD options and polarity" on page 69.

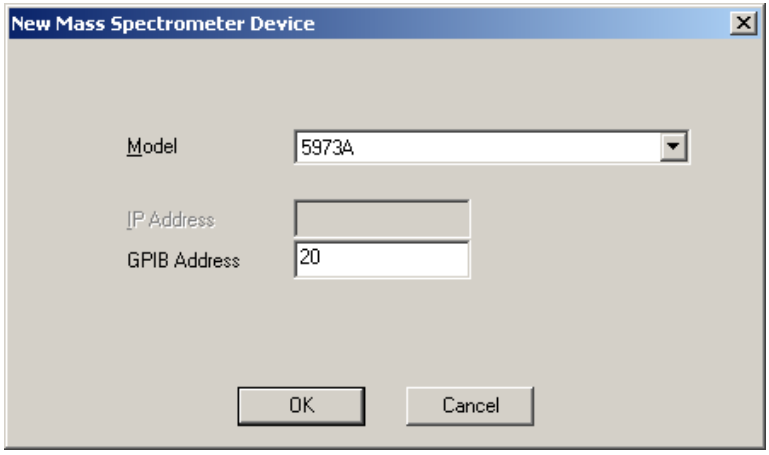
Configuring the GPIB 5973 MSD

If your selected Model is 5973A and uses GPIB communications, then continue with the following procedure. If the MSD is LAN capable (a 5975, 5973N, 5973 inert, or converted 5973 MSD) and

is selected as your Model, then go to the *previous* section, "Configuring the 5975 or LAN-capable 5973 Series MSD" on page 65, for the appropriate procedure.

1 Enter the default MSD GPIB Address, **20**. Click **OK** to accept the address:



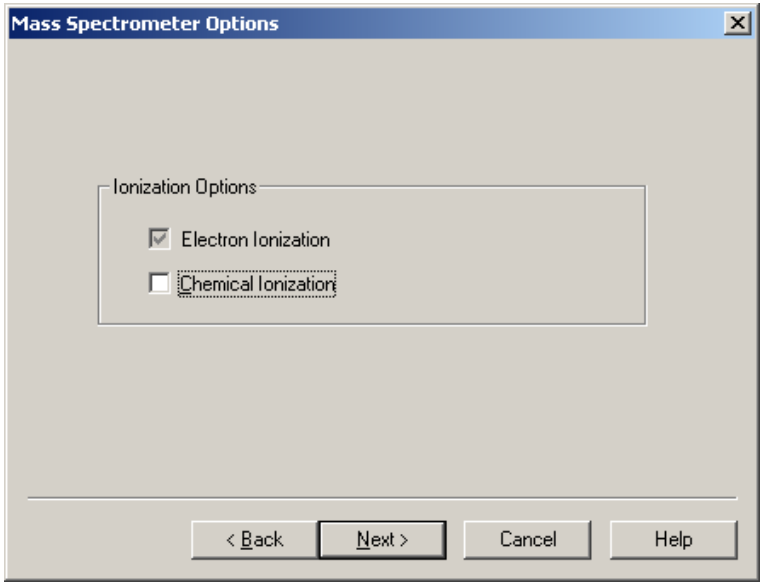


2 Verify you have the correct MSD Model and GPIB Address.

3 Click **Next** and continue with the next section.

Configuring MSD options and polarity

1 The **Ionization Options** screen appears (5973 MSDs only). If your MSD has Chemical Ionization capability, check that box.



Click **Next>**. The **Set DC Polarity** screen appears.

2 Refer to the Autotune report shipped with your MSD to determine optimum polarity to use and select the appropriate setting. Then click **Next>** to complete MSD configuration.

Configuring the GC

Upon completing MSD configuration, the process continues with configuring the GC:

1 Select the **Include a Gas Chromatograph in this Instrument Configuration** option and click **New GC Device**. The New Gas Chromatograph Device dialog box appears.

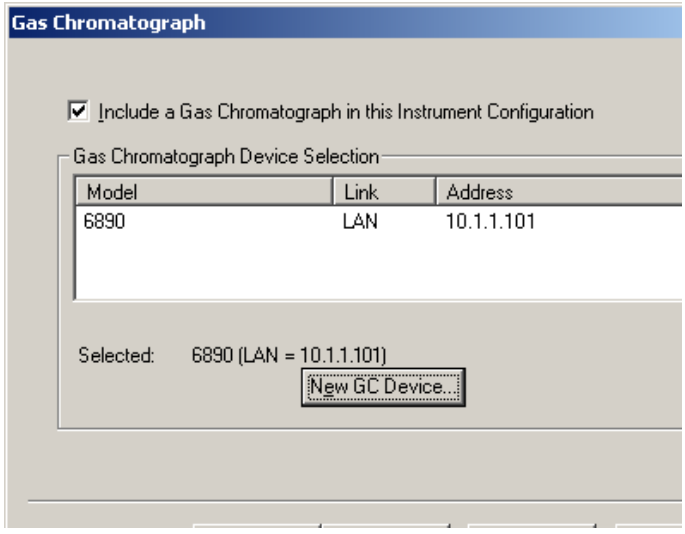
2 Select the **GC Model** as either 6890 (default), 6850, or Other. Then select the communications **Link** as either **IP** or as **GPIB**. Continue with "Configuring a LAN-based GC" on page 70 or "Configuring a GPIB-based 6890/Other GC" on page 71.

Configuring a LAN-based GC

If your GC uses LAN communications:

1 Enter the GC **IP Address**. For a GC **not** on a site LAN system, this will be **10.1.1.101**. Click **OK** to accept the address.

2 Verify you have the correct GC Model and IP Address. If correct, then click **Next>** to continue to the **Data Analysis Mode** screen. See "Configuring data analysis and configuration review" on page 72).

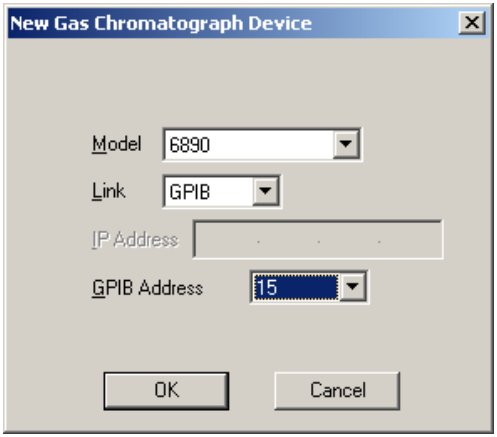


Configuring a GPIB-based 6890/Other GC

If your GC uses GPIB communications:

1 Enter the GC **GPIB Address**, typically **15**. Click **OK** to accept the address.

NOTE Though the default address displayed is 1 for the GC, the internal default address within a 6890 GC is typically 0.

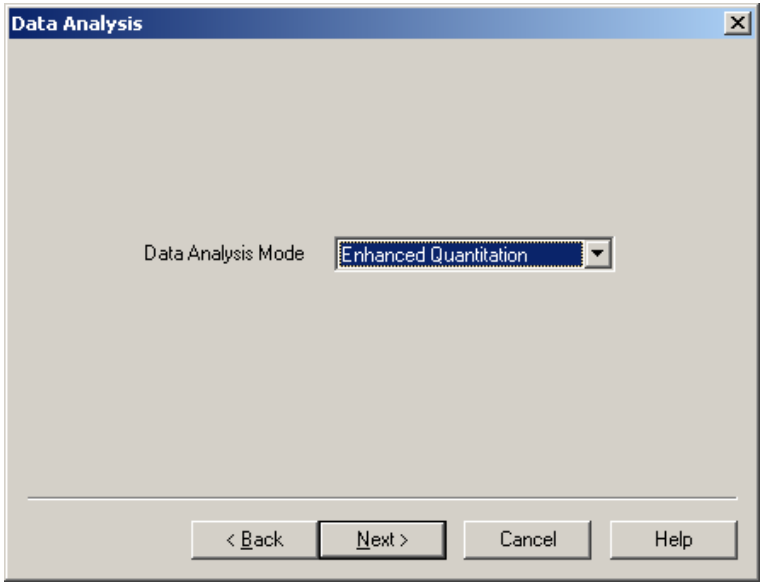


2 Verify you have the correct GC Model and GPIB Address. If correct, click **Next>** to continue to the **Data Analysis Mode** screen.

Configuring data analysis and configuration review

Select the desired **Data Analysis Mode** and click **Next** to continue. The four choices for Mode are:

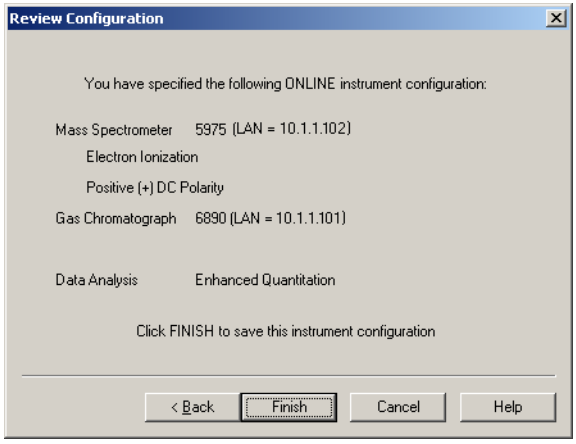
- **Enhanced Quantitation** (default, best for first-time users)
- **EnviroQuant (EPA)**
- **Aromatics in Gasoline**
- **Drug Analysis**



Finish up

One of two possible review screens appears (see Figure 2 and Figure 3 below), depending upon whether your system is LAN- or GPIB-based. If everything is satisfactory, click on **Finish** to complete the configuration process.

The MS Configuration program exits.



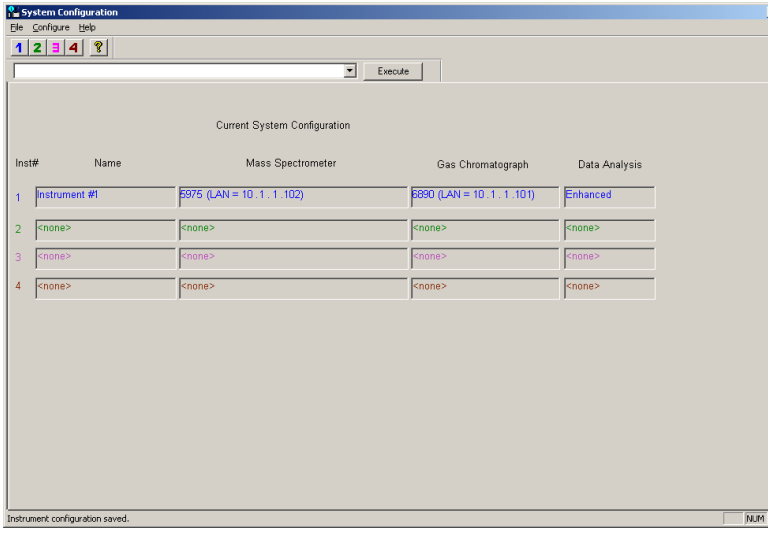
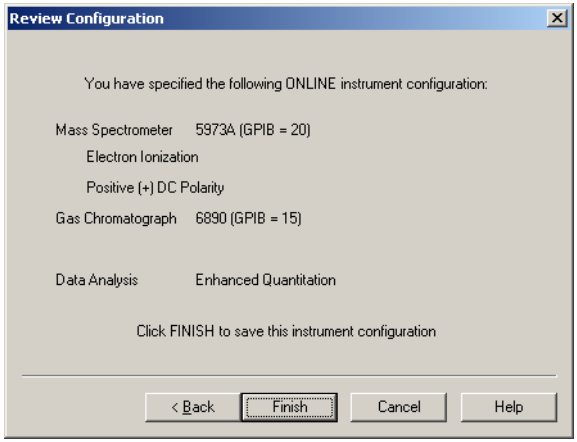


Figure 2 LAN-based system



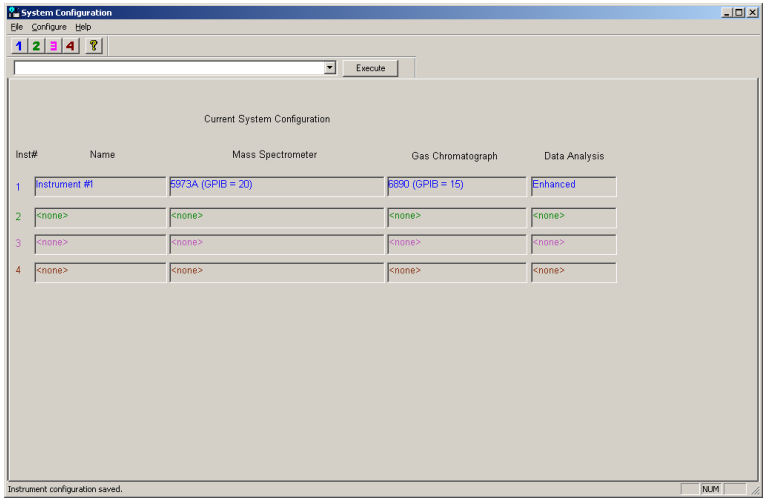


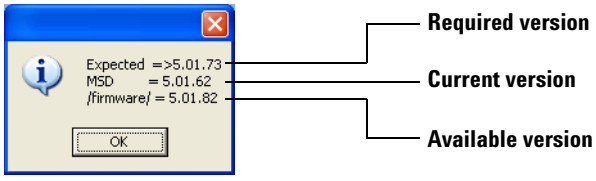
Figure 3 GPIB-based system

Configuring additional systems or data analysis modes

After the initial installation is made and verified, you can configure additional instruments and data analysis modes. Open the MSD Configuration program and configure instrument 2, 3, or 4 as needed.

Check for an MSD Firmware Mismatch

The MSD ChemStation checks for a specific revision of MSD firmware every time an instrument control session starts (LAN-based instruments only). If a mismatch exists between firmware versions, update the MSD firmware as described in "To Update MSD Firmware" on page 102.



The required version is the version the software is expecting.

The current version is the version that is currently loaded on the MSD's LAN/MSD Control Card.

The available version is the version that is on the hard drive firmware directory.

6
Supplemental Information

Upgrading from Version D.01.xx 78
Changing Installed MSD ChemStation Options 82
Repairing (Reinstalling) MSD ChemStation Software 83
Removing (Uninstalling) MSD ChemStation Software 84
Using the Windows Firewall with the Agilent MSD ChemStation 85
5975 and 5973 Series MSD LAN system 89
To Update MSD Firmware 102

This chapter describes additional information which applies to some systems but is not required for all users.

Upgrading from Version D.01.xx

The install program for the G1701DA D.02.xx MSD ChemStation software will automatically detect and offer to upgrade any previously-installed MSD ChemStation version CA or DA.

Checklist for PCs with existing MSD ChemStation software

- ❏ Verify the GC/MSD performance prior to updating the software packages.
  - ❏ Perform an autotune.
  - ❏ Perform a quick method to verify acquisition, for example signal to noise.
- ❏ Backup all critical data, methods, sequences and/or libraries and any other specific information critical to the system.
  - ❏ Archive data to a CD or to another backup source.
  - ❏ Validate the backup information.
- ❏ Remove CAG Bootp Server (if installed from CA MSD ChemStation). Note that, if desired, the CAG Bootp Server can be used to configure IP addresses before its removal.
  - ❏ Run CAG Bootp Server program.
  - ❏ Record the MSD and/or GC MAC address.
  - ❏ Remove all Bootp Entries.
  - ❏ Exit from program.
  - ❏ **Start/Settings (Windows 2000)/Control Panel/ Add/Remove Programs/ Remove CAG Bootp Server.**
  - ❏ Reboot MSD ChemStation (recommended even if not prompted).
- ❏ Uninstall existing Agilent I/O Libraries (SICL Drivers).
  - ❏ **Start/Settings (Windows 2000)/Control Panel/Add/Remove Programs/ Remove SICL Drivers.**

- ❏ Reboot MSD ChemStation (recommended even if not prompted).

❏ Install the supported version of the Agilent I/O Libraries (SICL Drivers).

❏ Install and configure Bootp service, if needed (see Table 1 on page 19 and Chapter 3).

❏ Install the MSD Productivity ChemStation software upgrade.

❏ Reconfigure the instruments.

Upgrade procedure

To upgrade the software to version D.02.xx:

1. Verify the GC/MSD performance by performing an autotune and a quick method.
2. Backup all critical data, methods, sequences and/or libraries and any other specific information critical to the system.
3. Uninstall the CAG Bootp Server program, if installed.
   - **a** Run the CAG Bootp Server program.
   - **b** Record the MSD and/or GC MAC addresses.
   - **c** Remove all Bootp Entries.
   - **d** Exit from program.
   - **e** **Start/Settings (Windows 2000)/Control Panel/Add/Remove Programs/ Remove CAG Bootp Server**.
   - **f** Reboot the MSD ChemStation (recommended even if not prompted).
4. Uninstall any pre-existing version of the Agilent I/O Libraries (SICL drivers).
   - **a** Select **Start/Settings (Windows 2000)/Control Panel**, then select **Add or remove Programs**.
   - **b** Select **Remove SICL Drivers** or **Agilent I/O Libraries/Remove**, as applicable.

5 Install the supported version of the Agilent I/O Libraries as described in “Installing Agilent I/O Libraries (SICL Drivers) for TCP/IP Support” on page 38 and /or “Installing Agilent I/O Libraries for GPIB Support” on page 53.

6 If needed, install the Bootp Service as described in “Installing Agilent Bootp Service” on page 41.

7 Insert the G1701DA MSD ChemStation CD into the CD-ROM drive. If it does not start automatically, double-click the file **Index.htm** in the root directory of the CD-ROM.

8 Click a language to proceed to the Welcome Screen. The Agilent Welcome screen appears.

9 Navigate to the **MSD ChemStation** page by clicking the link in the upper left corner under “Contents”. On the **MSD ChemStation** page, click the link **G1701DA MSD Productivity ChemStation.**

10 Choose a language and click **Next>**.

11 The InstallShield Welcome screen appears. Click **Next**.

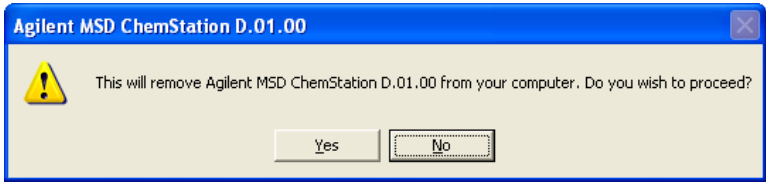
12 The install program will detect the previous installation and prompt you to upgrade. Click **Yes**.

13 The Customer Information screen appears. Enter the necessary information and click **Next>**.

Your registration number is on the software registration certificate provided in your software kit.

14 Select the features you want installed on your system and click **Next>**.

15 A message will appear like the one below. Proceed with the uninstallation by clicking **Yes**.


Agilent MSD ChemStation D.01.00
This will remove Agilent MSD ChemStation D.01.00 from your computer. Do you wish to proceed?
Yes
No

16 The install program will notify you when the old MSD ChemStation has been successfully removed from your system. Click **OK**.

17 The InstallShield Wizard Complete screen appears. Select **Yes, I want to restart my computer now** and click **Finish**.

18 After reboot, reconfigure your instruments.

- If installing over a working installation, the MSD configuration program will remember the configuration details, but needs to run in order to create new instruments with updated information. Follow the steps under "Configuring Instruments in the MSD ChemStation" on page 63. However, you will only need to provide the new instrument name, and to verify the previous settings.
- Note that the old instrument directory will be renamed during this process to include the extension ".old." Any previous ".old" directory is overwritten.
- Remember that earlier versions of the software did not include 6850 GC control. Configure it now.

Changing Installed MSD ChemStation Options

If you chose not to install some features during your initial Agilent MSD Productivity ChemStation installation, this procedure will help you add them to your system.

1. Insert the G1701DA MSD ChemStation CD into the CD-ROM drive. If it does not start automatically, double-click the file **Index.htm** in the root directory of the CD-ROM.
2. Click a language to proceed to the Welcome screen. The Agilent Welcome screen appears.
3. Navigate to the **MSD ChemStation** page by clicking the link in the upper left corner under “Contents”. On the **MSD ChemStation** page, click the link **G1701DA MSD Productivity ChemStation**. The Modify/Repair/Remove screen appears.
4. Select **Modify** and click **Next>**. The Select Features screen appears.
5. Select the optional features you want to install. Click **Next>** to install the selected features.
6. Once installation is complete, select **Yes, I want to restart my computer now**, remove the CD-ROM from the drive, and click **Finish** to restart your computer.

Repairing (Reinstalling) MSD ChemStation Software

This procedure contains tips to help you reload the MSD ChemStation software on an existing system.

1. Backup all important files and folders, including the msdchem directory (<n>:\msdchem, where <n> is the drive where the MSD productivity software is installed).
2. Insert the G1701DA MSD ChemStation CD into the CD-ROM drive. If it does not start automatically, double-click the file **Index.htm** in the root directory of the CD-ROM.
3. Click a language to proceed to the Welcome screen. The Agilent Welcome screen appears.
4. Navigate to the **MSD ChemStation** page by clicking the link in the upper left corner under “Contents”. On the **MSD ChemStation** page, click the link **G1701DA MSD Productivity ChemStation**. The Modify/Repair/Remove screen appears.
5. Select **Repair** and click **Next>** to reinstall Agilent MSD Productivity ChemStation. The Setup Status screen appears. Reinstallation may take a few moments to complete.
6. Once configuration is complete, select **Yes, I want to restart my computer now**, remove the CD-ROM from the drive, and click **Finish** to restart your computer.

Removing (Uninstalling) MSD ChemStation Software

Use the following procedure to remove the MSD ChemStation version D.02.xx software.

1. Close ALL applications.
2. If there are any data, methods, libraries, or other files or directories that you want to save, move or copy them to a separate directory.
3. Select **Start/Settings (Windows 2000)/Control Panel**, then select **Add or remove Programs**.
4. Select **Agilent G1701DA D.02.xx MSD Productivity ChemStation**, then click **Remove**. The MSD ChemStation software will be deleted.
5. After removal of the MSD ChemStation software, you will be prompted to restart your computer. Select **Yes, I want to restart my computer now** and click **Finish**.
6. Once the computer restarts, open Windows Explorer and delete the **\msdchem** directory.
7. Delete the file **C:\WINNT\msdchem.ini** (Windows 2000) or **C:\Windows\msdchem.ini** (Windows XP).

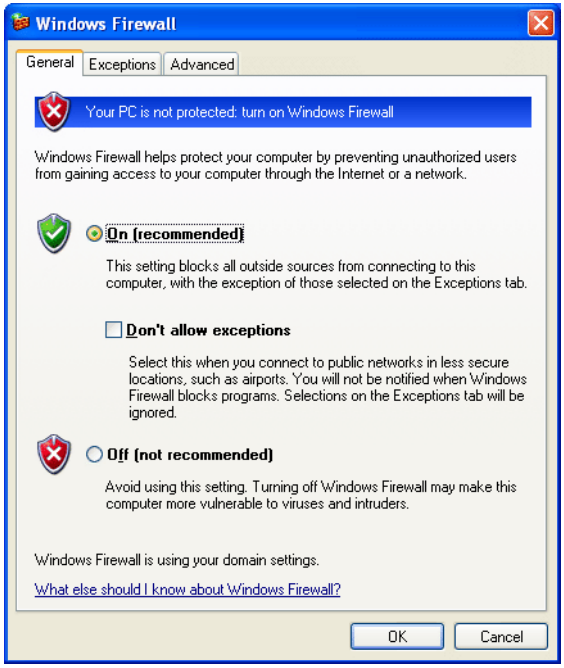
This completes uninstallation of the MSD ChemStation software. If you wish to completely remove all Agilent MSD ChemStation components, you must also uninstall the Agilent I/O Libraries and the Agilent Bootp Service, if installed. See steps 8 and 9 below.

8. Uninstall the Agilent I/O Libraries (SICL drivers). From **Add or remove Programs**, select **Remove SICL Drivers** or **Agilent I/O Libraries/Remove**, as applicable.
9. Uninstall the Agilent Bootp service. From **Add or remove Programs**, select **Agilent Bootp Service/Remove**. This completes uninstallation of MSD ChemStation software and all related components.

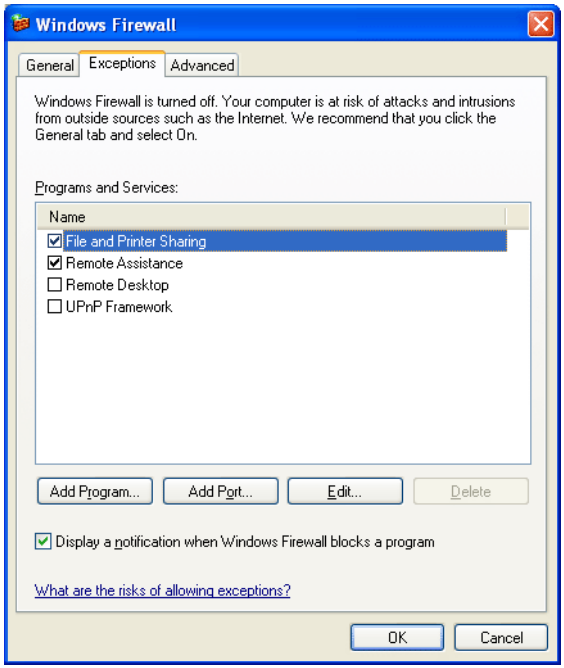
Using the Windows Firewall with the Agilent MSD ChemStation

The Windows Firewall is installed with Windows XP Service Pack 2 and is automatically activated once the installation is complete. The Windows Firewall is known to cause conflicts with the functionalities of the MSD ChemStation. To resolve these conflicts, install the MSD ChemStation software, then add the MSD ChemStation applications to the Windows Firewall exceptions list as described below:

1. Log onto your computer with administrative privileges.
2. Select **Start/Control Panel/Security Center** to display the Windows Security Center.
3. To display the Windows Firewall configuration dialog, select the **Windows Firewall** icon. Make sure that the **Don't allow exceptions** box is unchecked (that is, allow exceptions).

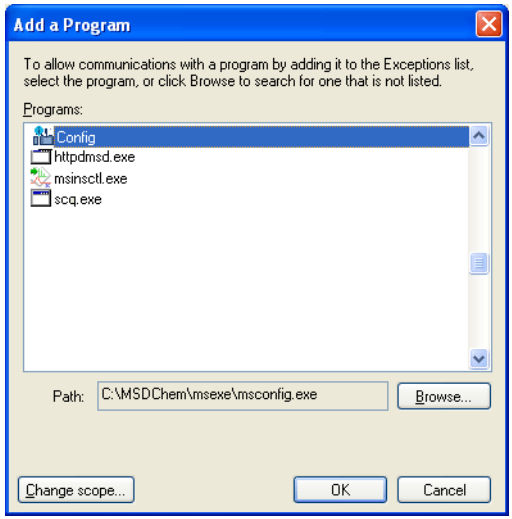

Windows Firewall
General
Exceptions
Advanced
Your PC is not protected: turn on Windows Firewall
Windows Firewall helps protect your computer by preventing unauthorized users from gaining access to your computer through the Internet or a network.
On (recommended)
This setting blocks all outside sources from connecting to this computer, with the exception of those selected on the Exceptions tab.
Don't allow exceptions
Select this when you connect to public networks in less secure locations, such as airports. You will not be notified when Windows Firewall blocks programs. Selections on the Exceptions tab will be ignored.
Off (not recommended)
Avoid using this setting. Turning off Windows Firewall may make this computer more vulnerable to viruses and intruders.
Windows Firewall is using your domain settings.
What else should I know about Windows Firewall?
OK
Cancel

4 Select the **Exceptions** tab.



5 Check the **Display a notification when Windows Firewall blocks a program** box so that the Windows Security Alert window appears every time Windows Firewall blocks a program.

6 Select **Add Program** and browse to the MSD ChemStation installation directory. The default location is C:\MSDChem.



7 Select **msconfig.exe** and click **OK**.

8 Repeat steps 6 and 7 for **msinctl.exe**, **scq.exe**, and **httpdmsd.exe**.

The Windows Firewall is now configured to allow operation of the MSD ChemStation.

After completing the above procedure, continue installation with “Configuring Instruments in the MSD ChemStation” on page 63.

Windows Security Alert Screen

If in the future you receive a Windows Security Alert screen, follows the steps below:

1 Make sure you want to unblock the detected program.

Windows Security Alert
To help protect your computer, Windows Firewall has blocked some features of this program.
Do you want to keep blocking this program?
Name: Instrument Control and Calibration
Publisher: Agilent Technologies, Inc.
Keep Blocking
Unblock
Ask Me Later
Windows Firewall has blocked this program from accepting connections from the Internet or a network. If you recognize the program or trust the publisher, you can unblock it. When should I unblock a program?

2 Click **Unblock**.

3 Repeat this process until the program has started and is functioning properly.

5975 and 5973 Series MSD LAN system

Connecting the instrument to the customer site network is not part of the installation and familiarization of the 5975 or 5973 Series MSD instrument. This option can be purchased and is done after initial installation and familiarization.

Intended audience

This section is written to help network administrators migrate analytical instrumentation from an isolated or standalone network to their site LAN. To use these instructions, you are expected to understand the Windows operating system and TCP/IP networking, and to be familiar with the particular hardware devices and configurations of your organization's LAN.

Assumptions

This documentation assumes that a service engineer has already installed, configured, and verified the installation and performance of the analytical instrumentation as described in the hardware and software installation manuals using the default IP addresses described in this manual.

Agilent Technologies is not responsible for any software problems, LAN configuration conflicts or performance problems that may result when a system is connected to a nonisolated LAN. Service calls requested by the operators of analytical instruments that are determined to have a "root cause" of networking reconfiguration may result in an unexpected billing for time and materials. This section and Troubleshooting in Chapter 7 are intended to provide you with the information to configure, manage, and maintain LAN-based analytical instruments without any detrimental effects on the operation or supportability of that instrumentation.

Checklist

This checklist summarizes steps described in this section:

- ❑ Verify functionality of the isolated LAN:
  - ❑ MSD ChemStation Config - Check Networking.
  - ❑ Run the instrument.
- ❑ Reconfigure the computer:
  - ❑ Connect switch/hub to site LAN.
  - ❑ Fill out worksheet of networking information.
  - ❑ Update the IP address of the ChemStation computer.
  - ❑ Make sure nearby networked printers are turned ON.
  - ❑ Ping proposed IP addresses of analytical instruments to avoid duplicate IP addresses.
- ❑ Reconfigure analytical instruments:
  - ❑ Update the IP address of the 5975/5973 Series MSD.
  - ❑ Update the IP address of the GC.
- ❑ Verify the functionality of the site LAN:
  - ❑ MSD ChemStation Config - check networking.
  - ❑ Run the instrument.
- ❑ Other networking customizations:
  - ❑ Networked printers.
  - ❑ Shared disc drives.
  - ❑ Switches, routers, and so forth.
  - ❑ Accounts, permissions, and so forth.

IP addressing requirements

The MSD and GC must have fixed (static), permanent IP addresses. If the site requires DHCP, the computer must have a static, permament address assigned to it.

The MSD ChemStation can have a dynamic IP address. DHCP is not supported for any instrument used with the MSD ChemStation.

To determine a computer's site IP address

To determine the IP address, subnet mask, and default gateway for a site LAN computer:

1 Select **Start/Run**, type **CMD**, and click **OK**.

2 At the command prompt enter **IPCONFIG**.

Record the **Subnet Mask** and **Default Gateway** addresses to be used in configuring Bootp services.

Theory of LAN-based instrumentation

MSD ChemStation systems consist of:

- A computer running Windows 2000 or Windows XP equipped with a network interface card
- A 6890 or 6850 GC with appropriate LAN communication
- A 5975 or 5973 Series MSD with a proprietary LAN/MS control card
- A 10-BaseT hub or switches
  - Note that switches do not have a cascade port, nor do they care about using crossover cables. Also, they allow the PC and GC to run at 100 mps instead of 10. And, after checkout, they can be simply plugged into the house network.
  - Newer systems include switches only. If upgrading an older system using a hub, it is recommended that the hub be replaced with a switch.
  - For a site LAN, a switch is preferred, as it greatly reduces traffic on the site LAN. Using a switch, traffic only occurs upon initial contact with the instrument.
  - Requirements for using a SWITCH:
    - The IP addresses of the PC and the instruments must be compatible with the site LAN.
    - The computer must be a member of the site domain, with a compatible host name.
    - You need to add DNS's compatible with the site LAN if the computer does not run DHCP.

    - You cannot ENABLE DHCP for an isolated LAN.
    - You must log on as Administrator.
  - Additional advantages of the switch shipped with the MSD:
    - Can use standard or crossover LAN cables
    - Takes care of speed resolution: the PC and GC can operate at 100 mps while the MS operates at 10 mps
    - Isolates Bootp systems from seeing a DHCP server on the other side of the switch
    - Reduces traffic on the “house” side of the LAN
    - Eliminates problems and complexities arising from use of dual network cards
- Appropriate-category LAN cables to connect the switch/hub with the other components

The software environment consists of:

- Windows 2000 with SP4 or Windows XP with SP2.
- TCP/IP networking configured; RPC and Winsock are used in the application
- SICL (Standard Instrument Control Library) drivers for GC/MS LAN communication
- Assign IP addresses, Gateway addresses, and subnet masks to the GC and MSD
- MSD ChemStation Configuration program - requires administrative privileges
- MSD ChemStation software for instrument control, sequencing, and data analysis

Typical cold-start procedure

Assumes that the GC, MSD, and ChemStation computer are all off.

1. Power up the switch/hub.
2. Power up the ChemStation computer. If the MSD and/or GC requires Bootp Service to assign the IP address, then wait at least until the Windows login screen appears before

continuing. This ensures instruments are assigned their IP addresses.

3 Power up the MSD:
After 20 seconds of 'POST' ("Power-On and Self-Test"), the Local Control Panel should display its status.

4 Power up the GC:
After about 1 minute of POST, the GC display should report its status.

5 Start the MSD ChemStation software.

Verify the isolated LAN instrument

1 Run the MSD ChemStation config program:

Select the **Help/Check Networking** item, which will indicate the status of the MSD. If it is not okay, proceed to the troubleshooting information in Chapter 7. This item performs the following tests to verify the functionality of the LAN and the existence of the instrument.

- Ping loopback
- Ping GC by its IP address (10.1.1.101)
- Ping MSD by its IP address (10.1.1.102)
- Ping MSD by its LAN name - configured in the HOSTS file and required by RPC
- RPCINFO test verifies the IP address is a MSD
- SCQ test verifies MSD firmware is functioning properly

2 Run the instrument. During the startup of the instrument, the following tests are performed:

- Ping GC
- Ping MSD
- Check high order bytes of PC, GC, and MSD IP addresses for commonality

After the program has completed its startup and initialization procedures, select the **View/Instrument Control** item and verify that Instrument Status is READY.

Reconfigure the ChemStation computer

1 Connect the switch/hub to the site LAN. For a hub, use the “cascade” connector.

2 Write down all appropriate LAN information.

3 Reconfigure the IP, subnet mask and gateway addresses.

NOTE

The troubleshooting section in this manual is based on troubleshooting the system (computer, GC, and MSD) on a isolated LAN. Problems associated with the site LAN must be solved by whoever owns and maintains the site LAN. If the networking configuration of the ChemStation computer is modified to preclude proper operation of the computer on an isolated LAN, service engineers are trained to reinstall TCP/IP networking and configure the computer to work on an isolated LAN. For instance, the use of a DHCP server to assign the IP address to the PC is an example of a typical network administration procedure that would preclude proper functioning on an isolated LAN.

4 Verify that the ChemStation computer can successfully ping the gateway and is functioning properly on your site LAN.

5 Turn on nearby networked devices.

6 Ping the proposed IP addresses for the GC and the MSD to verify that those addresses are not currently in use by another device. (A successful reply means another device is already using that proposed IP address.)

Reconfigure analytical instruments

This procedure is for GC/MSD systems using Agilent Bootp Service.

1 Turn off Agilent Bootp Service.

2 Start the MSD Configuration program and review the ChemStation’s settings for each instrument to make sure they match the actual instrument settings. See Chapter 3, “Adding Instruments After Initial Bootp Setup.”

3 Select the **Configure\Bootp Manager** to reconfigure the GC:

   a Change the IP address supplied to the GC as you changed the MSD.

   - If not already configured, obtain the GC MAC address directly from the JetDirect Card itself.
   - Change the IP address, gateway address, and subnet mask to conform to your site LAN.

   b Power cycle the GC.

   c After about 1 minute you should see the Bootp request and the IP address being assigned.

   d Ping the GC.

   e Connect the switch/hub to the site LAN and ping the GC.

4 Select the **Configure\Bootp Manager** to reconfigure the MSD:

   a Change the IP address supplied to the MSD.

   - If not already configured, obtain the GC MAC address directly from the MSD Local Control Panel.
   - Change the IP address, gateway address, and subnet mask to conform to your site LAN.

   b Power cycle the MSD.

   c After about 20 seconds you should see the Bootp request and the IP address being assigned.

   d Ping the MSD.

   e Connect the switch/hub to the site LAN and ping the MSD.

CAUTION

The next step should be performed with input from the lab manager or MSD instrument operator as it overwrites tune or calibration files for the MSD. It also resets the default method (DEFAULT.M). Contact the MSD instrument operator to see if tune (c:\msdchem\1\5973N*.U) and default method (c:\msdchem\1\methods\default.m*.*) files should be backed up before proceeding.

5 Reconfigure the MSD ChemStation software to use the new IP addresses:

   a Run the MSCONFIG program from the MSD ChemStation Folder.

   b Select the **Help\Network Information**. Print the information that appears on the screen.

   c Select **File\Delete All Instruments**.

   d Select **Configure\Instrument #1** and configure the instrument using the site LAN IP addresses.

For systems with the IP addresses configured at the instruments:

1 Enter the new IP address on each instrument.

2 Ping each instrument.

3 Connect the switch/hub to the site LAN and ping each instrument.

Verify the instrument on the site LAN

1. Run the MSD ChemStation software and select **Help\ Check Networking** which will indicate status of the MSD. If it is not okay, proceed to troubleshooting information in Chapter 7.

   The following tests are performed to verify LAN functionality and existence of the instrument:

   - Pings loopback
   - Pings GC by its IP address
   - Pings MSD by its IP address
   - Pings MSD by its LAN name - configured in the HOSTS file and required by RPC
   - Performs RPCINFO test to verify the IP address is a MSD
   - Performs SCQ test to verify MSD firmware on the LAN/MS Control card is functioning properly

2. Run the instrument. During instrument startup, the following tests are performed:

   - Pings GC
   - Pings MSD
   - Checks high order bytes of PC, GC, and MSD IP addresses for commonality

3. After the program has completed startup and initialization procedures, select **Instrument Control** and verify that Instrument Status is READY. At this point, the MSD system is ready to use.

Other network customizations

Networked printers - Add any network printers which may be useful to the operator or the organization. MSD ChemStation software is designed to use only the Windows default local printer. The typical system is sold with an HP LaserJet 2200D or 2300 printer, which is intended to be a local printer on the parallel port of the ChemStation computer. These are the only fully supported printers. Service engineers are not trained to configure and support network printers. Experience has shown that network printers work very well if the correct printer drivers are installed with a supported printer. However, analytical instrumentation may produce long graphical reports which may overburden a shared network printer and, for that reason, local printers are recommended.

Shared disk drives - Connect to any network file systems which may be useful to the operator or the organization. MSD ChemStation software is designed to write data to the local disk in the ChemStation computer during data acquisition. After data is collected, you may copy data to networked drives using the standard operating system tools such as Windows Explorer. Response center engineers can provide assistance to customize the MSD ChemStation software to automatically copy data files to a server-based file system for archiving or shared processing.

File system format - MSD ChemStation software is only tested with NTFS local file systems. Other file systems such as Novell can work correctly in a carefully administered environment.

User accounts - Security, accounts, and permissions are your responsibility. The critical operations of the MSD ChemStation software (acquiring and processing data) require the user to have full access to directory structures for data files and methods. If file permissions are restricted, operation of the MSD ChemStation will be impaired. Service engineers are not trained to identify or correct these problems which are not considered to be defects or warrantable items by the manufacturer.

Switches, routers, and other network devices - Real-time control of analytical instruments places additional traffic onto your network. Analysis reveals that each GC/MS/PC system uses between 5% to 10% of a 10-BaseT network bandwidth when MSD ChemStation software is running. For modest network environments such as a small laboratory, this may be acceptable. In larger environments, we highly recommend that any hub used with an analytical instrument be connected through a “switch” to the site LAN infrastructure rather than through another hub. This strategy effectively isolates instrument-related LAN traffic from the normal traffic of your organization, and vice versa. Another technique to isolate data traffic generated by the analytical instrument from the site LAN is to add a second network interface card to the ChemStation computer.

To Update MSD Firmware

During startup of an instrument control session, the MSD ChemStation compares the firmware revision of the MSD against the firmware version stored under the \MSDChem\ msexe\firmware folder for the MSD model. If there is a mismatch, a popup warning appears.

If the MSD ChemStation detects a firmware mismatch, and the MSD firmware is **older** than the available version, update the MSD as follows:

1. Close any MSD ChemStation sessions, if open.
2. Open the MSD Configuration program.
3. Select **Help\Check Networking and Update MSD Firmware**. The MSD Configuration program will download the available firmware version to the MSD and install it.

If there is a mismatch, but the MSD has **newer** firmware than available, do not update the MSD firmware. If experiencing any problems running the instrument session or collecting data, contact your Agilent service representative.

7 Troubleshooting

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This chapter describes procedures to help you isolate and solve any communication issues your system might incur.

Network Verification Tests

The ChemStation software employs several tests to verify that the networking environment and analytical instrumentation are functioning. These tests can be initiated by selecting **Check Networking** from the Help menu in the MSD Configuration program. To open MSD Configuration, select: **Programs\MSD ChemStation\Config** from the Windows Start menu (Windows 2000), or **All Programs\MSD ChemStation\Config** (Windows XP).

When using the MSD Configuration program to configure the analytical instruments in your system, initiate network verification tests by selecting **Check Networking** from the Help menu.

If no errors are detected, the following messages appear:

MSD@ www.xxx.yyy.zzz Passed all Network Tests

OK to run the ChemStation

where **www.xxx.yyy.zzz** is the IP address for the MSD.

If there is a detectable problem you will see one of the following messages:

- **Loopback @ 10.1.1.100 failed the Ping test.**
- **GC @ 10.1.1.101 failed the Ping test.**
- **MSD @ 10.1.1.102 failed the Ping test.**
- **MSD @ 10.1.1.102 failed the Ping by name test.**
- **MSD @ 10.1.1.102 failed the RPCINFO test.**
- **MSD @ 10.1.1.102 failed the SCQ test.**
- **Network Problem must be fixed prior to running ChemStation.**

Note that the following default IP addresses were used in the examples above:

ChemStation computer	10.1.1.100
GC	10.1.1.101
MSD	10.1.1.102

Generally, if the networking tests are successful, the Agilent MSD Productivity ChemStation will start up properly and the instrument will run properly. If you do get one of the error messages, review troubleshooting information in the remainder of this chapter.

In addition to tests described in the previous section, several other network verification tests are performed whenever a LAN-based GC/MSD is started up. If these tests succeed, the instrument will start up. If the tests fail, you will see one of the following messages and Agilent MSD Productivity ChemStation startup will halt:

- **GC at IP address www.xxx.yyy.zzz Did Not Respond.**
- **MSD at IP address www.xxx.yyy.zzz Did Not Respond.**
- **Warning: Configure Instruments to be in the same subnet with Agilent BootP Service.**

The first two messages indicate the GC or MSD did not respond to the ping test. The third message indicates there may be something fundamentally wrong with the IP address or subnet mask assignments for the ChemStation computer, the GC, and/or the MSD.

NOTE

If you get any of these error messages when starting up the MSD ChemStation, run Check Networking in the MSD Configuration program as described in the previous section. Also run Check Networking if networking tests in the ChemStation succeed but the instrument fails to run correctly, or messages such as "MSD did not respond." are displayed.

For most networking situations, the following rules should be followed. Do not deviate from these rules unless you are knowledgeable about IP addresses, subnet masks, and gateways.

1. The subnet mask for the ChemStation computer, the GC, and the MSD should be **255.255.255.0**.
2. The first three segments of the IP address for the ChemStation computer, the GC, and the MSD should be the same. If **www.xxx.yyy.zzz** represents an IP address, then **www.xxx.yyy** should be the same for the ChemStation computer, the GC, and the MSD.

3 The last segment of the IP address for the ChemStation computer, the GC, and the MSD must be different for each. If **www.xxx.yyy.zzz** represents an IP address, then **zzz** must be different for the ChemStation computer, the GC, and the MSD.

4 If the organization possesses a gateway, the IP of the gateway should be the same for the ChemStation computer, the GC, and the MSD.

To check the IP Address, subnet mask, and gateway of the ChemStation computer

Windows 2000 or XP

1 Open the **Control Panel**.

2 From the Control Panel, double-click the **Network + Dialup Local Area Connection** (Windows 2000) or **Network Connections** (Windows XP) icon to display the Network dialog box.

3 Double-click **Local Area Connection**.

4 Click **Properties**.

5 Highlight the **Internet Protocol (TCP/IP)** item.

6 Click **Properties** and make sure DHCP is not selected.

NOTE If the computer must be part of a site LAN, then DHCP may be enabled. However, verify that the computer was assigned a static IP address by the LAN administrator.

To check the IP Address, subnet mask, and gateway of the GC and MSD

6890 GC

At the control panel, press **Options** and select **Communications**.

6890A/Plus GC

1. Select **Start\All Programs\Agilent Bootp Service\Edit Bootp Settings**.
2. Check the **Default Settings** to make sure they match the correct configuration. Correct default settings are:
   - Subnet mask 255.255.255.0
   - Gateway 10.1.1.100
3. Select **Launch Manager** to display hardware (MAC) address, **Host Name**, **IP Address**, **Comment**, **Subnet Mask**, and **Gateway**.
4. Check all entries. To fix a bad entry, select it and then select **Modify**.

6850 GC

From the handheld controller Status screen, select **Setup\ Configure\LAN Communication**. (Alternately, see "6850 GC" on page 35.)

5975 or 5973 Series MSD with LAN communication

Use the local control panel to display the IP address.

Check the **Default Settings** to make sure they match the correct configuration. Correct default settings are:

- Subnet mask 255.255.255.0
- Gateway 10.1.1.100

5973 MSD with GPIB communication

1. Select **Start\All Programs\Agilent Bootp Service\Edit Bootp Settings**.
2. Select **Launch Manager** to display hardware (MAC) address, **Host Name**, **IP Address**, **Comment**, **Subnet Mask**, and **Gateway**.
3. Check all entries. To fix a bad entry, select it and then select **Modify**.

Isolate the Problem

Here are some approaches you can try to help you determine what part of the system is causing a problem. First, characterize the problem as a constant or intermittent failure. Intermittent failures are discussed later in this chapter.

Try a different computer

If you have another computer with the same revision of software, can you configure and run the analytical instrument that isn't working? If so, the problem may be the computer.

If you do not have another computer already configured, you can install the SICL drivers, Agilent Bootp Service (if required), and MSD ChemStation software on another computer for diagnostic purposes.

If you have other computers on the same LAN, can they ping the ChemStation computer, the GC, or the MSD? If they can, then you know that certain equipment is probably good. It is important to rule out malfunctioning of even the smaller network components, such as hubs, switches, and LAN cables.

Re-establish a local instrument LAN

The first and most important step is to isolate the system from the site LAN. If the computer was moved so it is no longer connected to the switch/hub, move it so that it can be connected to the same switch/hub as the GC and MSD to eliminate problems relating to the network system. If the computer had been configured such that it does not work in an isolated LAN, configure it now on a local instrument LAN as described in Chapter 2 so components in the network are limited to:

- The computer with its network card
- The GC with LAN communication
- The MSD with its embedded LAN/MS Control card
- The switch/hub
- Three LAN cables

Run the Help/Check Networking item in the MSD Configuration program. If it indicates that the instrument is okay, try to run the instrument. If the instrument operates normally in an isolated LAN, but fails in the site LAN, the problem might be LAN traffic, duplicate IP addresses, or other network configuration problems.

Check cabling to the switch/hub

Before examining computer hardware and drivers, check the LAN cabling.

1. Cycle power to the switch/hub.
2. If the switch/hub has a 'POST' ("Power-On and Self-Test") described in its manual, verify it is correct.
3. Physically trace the cables back to the computer, to each GC, and to each MSD.
4. Verify that cables are plugged in firmly.
5. If you have a crossover LAN cable, verify it is not being used with a hub. Do not connect crossover cables to the switch/hub.
6. Verify the cascade port of a hub is not being used for a computer or instrument.
7. Verify the power cord of the power adapter is firmly plugged in.
8. Try moving the cables. This can reveal a faulty connector.
9. Try installing new LAN cables.
10. Try changing the position of the cables in the switch/hub.

Check the MSD ChemStation computer

If the cabling is correct, check the computer.

1. Clear/Save the **System** and **Application** logs in the **Event Viewer**.
   a. You can access the Event Viewer by selecting **Start**/**Settings (Windows 2000)**/**Control Panel**/**Administrative Tools**/**Event Viewer** from the Windows Start menu.
   b. Right-click **Application** and select **Clear all events**.
   c. Reply **Yes** to the question about saving the log.
   d. Supply a name and **Save** the log.
   e. Repeat steps b–e for the **System Log**.
2. Reboot the computer and log in with administrative privileges.
3. Use Event Viewer to examine the System and Application logs for network-related error messages.
   - Look for hardware problems with the network card, TCP/IP configuration errors, duplicate IP addresses, etc.
4. Perform a loopback test.
   a. Select **Run** from the **Start** menu.
   b. Type `cmd` and select **OK**. A command window opens.
   c. Type `ping 10.1.1.100` and press **Enter**. (Use the computer's current IP address in the ping command.)

      If the test is successful, the Agilent MSD Productivity ChemStation computer, its network card, and TCP/IP configuration are good.

      If the test fails or times out, a serious LAN problem is present and must be resolved before proceeding.
   d. Type `Exit` to close the window.

Check system integrity

The following suggestions are ordered from least to most drastic:

1. Run a current and competent virus detection program. Viruses can cause a computer to either fail completely or to behave erratically.
2. Scrutinize the BIOS setting of the ChemStation computer to ensure no setting precludes use of LAN. Disable superfluous hardware in the BIOS to avoid IRQ and/or other resource conflicts.

Check the GC

Assuming that the cabling and computer tests have been passed, proceed to check out the GC.

Test the LAN communications to the GC

1. Select **Run** from the **Start** menu. Type `cmd` and select **OK**. A command window opens.
2. Ping the GC. For example, type `ping 10.1.1.101` and press **Enter**. (Use the GC's current IP address.)
3. The response should be similar to the results shown on page 33.
4. Type `Exit` to close the window.

Check the GC LAN status (for 6890N)

1. Press **[Options]** on the GC keyboard.
2. Scroll to **Diagnostics** and press **[Enter]**.
3. Scroll to **LAN Status** and press **[Enter]**.
   - If LAN communications are installed, configured, and operating properly, the LAN card serial number, firmware version, and MAC address will be displayed.
   - If the LAN Status is **Not Installed**, there is a problem in the GC. Contact Agilent for service.

Check the GC LAN status (for 6850)

Using the handheld controller, go to **Status/Setup/Configure/LAN Comm**. If LAN communications are installed, configured, and operating properly, the IP address, subnet mask, gateway, and control mode will be displayed.

If a handheld controller is not available, see "6850 GC" on page 35.

Test the LAN configuration (for 6890A/Plus GCs)

1 Cycle power to the GC and wait 40 seconds to determine if Agilent Bootp Service detected the Bootp request.

2 If the Agilent Bootp Service *did* detect the Bootp request:

Did the Bootp request supply the correct IP address?

If yes: Can you ping the GC?

If yes: The GC is configured properly on the network

If no: The unit could be controlled by another Agilent Bootp server: verify Local Network

If no: Add the new MAC address to the Bootp Server: delete the old MAC address that had been assigned to that IP address. Now can you ping it?

If yes: The GC is configured properly on the network

If no: Verify hardware connections

3 If the Agilent Bootp Service *did not* detect the Bootp request, replace the LAN cables to the Agilent MSD Productivity ChemStation computer and the GC. Repeat the tests in this section.

Check the MSD

If the cabling, computer, and GC tests have been passed, proceed to check out the MSD.

Test the MSD LAN hardware

1 Power cycle the MSD.

2 Examine the LEDs at the back of the instrument. Beneath the LAN RJ-45 cable, there are two LEDs: a power LED and a heartbeat LED.

3 Is the Power LED on or off?

If On: Power and power cord are okay

If Off: Power and power cord should be checked. Are they okay?

If yes: There is a hardware problem with the MSD

If no: Check circuit breaks and replace power cord as necessary.

Is the heartbeat LED blinking?

If yes: Is it blinking on/off/on/off evenly?

If yes: The hardware is okay

If no: Report the blinking pattern to your service representative

If no: Flash memory has been corrupted or the LAN/MS control card is defective. Place service call.

Test the MSD LAN configuration (for use with instruments using Agilent Bootp Service)

1 Power cycle the MSD and wait 25 seconds to determine if Agilent Bootp Service detected the Bootp request.

2 If the Agilent Bootp Service *did* detect the Bootp request:

Did the Bootp request supply the correct IP address?

If yes: Can you ping the MSD?

If yes: The MSD is configured properly on the network

If no: The unit could be controlled by another Agilent Bootp server: verify Local Network

If no: Add the new MAC address to the Bootp server: delete the old MAC address that had been assigned to that IP address. Now can you ping it?

If yes: The MSD is configured properly on the network

If no: Verify hardware connections

If no: Replace the LAN cables to the ChemStation computer and the MSD. Repeat tests in this section.

3 If the Agilent Bootp Service *did not* detect the Bootp request, replace the LAN cables to the ChemStation computer and the MSD. Repeat the tests in this section.

Intermittent Problems

Intermittent problems are much more difficult to identify and solve. Executing the following commands from the Windows Command Prompt may help locate the problems.

If the networking configuration is working most of the time, probing the reliability and performance of the LAN by using ping can help with system diagnostics.

ping -t -w 1000 -n 1 -l 1024

-t = ping continuously until interrupted by Ctrl-C

-w 1000= 1000 millisecond timeout

-n 1= 1 packet per ping

-l 1024= 1024 byte packets

When this command is executed, you should see a continuous stream of packet returns. If you see occasional "timed out" messages, it indicates that something caused the packet not to be returned within the timeout period.

ipconfig/all

When this command is executed, you should see a series of network connections setup on the computer. This could be useful to help identify incorrectly entered IP Addresses (Subnet Masks, Gateways, and so forth). All information is stored in the current directory in a file named ipconfig.txt. An example file is shown later in this chapter.

Optionally, redirect the output to a text file on the root of the C:\ drive.

ipconfig/all >C:\ipconfig.txt

LAN Communication Tests

Ping test

When ping succeeds

If ping succeeds, it implies the device specified by the IP address in the MSD Configuration program exists and basics of network communications are functional. What you learn if ping succeeds:

- The instrument exists
- The network drivers are installed correctly on the ChemStation computer and on the device
- TCP/IP as a protocol is running and adequately configured on the MSD ChemStation computer and device
- LAN cables are good and no gateway, router, or switch is presenting any obvious problem
- Subnet masks are not presenting a problem

What you still do not know even if ping succeeds:

- If the selected device is a GC or an MSD
- If the device is ready to be controlled by an MSD ChemStation
- If the GC has the right firmware (note that PING is the only network diagnostic available for the GC)

When ping fails

If ping fails, it implies that something is fundamentally wrong and could be one or more of the following:

- Bad network card in the MSD ChemStation computer. If the network card is bad, there should be a message in the Event Viewer system log to indicate the problem.
- TCP/IP software is not installed (Windows XP only). Check **Control Panel/Network Connections/Local Area Connection/Properties**. If TCP/IP is not there, it must be installed. Do not forget to reload Service Pack(s) after you change your network configuration.

- Bad LAN cables or connections. Physically inspect LAN cabling. Use a computer connected to the same hub if necessary. Change LAN cables with cables known to be good.
- One or more network device(s) is/are not powered up.
- For a GC/MS system using Agilent Bootp Service, perhaps its IP address was not received at the device, or it received the wrong IP address from a second Bootp server. Make sure the appropriate Bootp service is running. Power cycle the device to "restore" Bootp service. Wait for the Bootp server to receive the Bootp request and issue the IP address. Use the logging feature to check this.
- The LAN card (GC) or LAN/MS Control card (MSD) has failed. For a 6890A/Plus GC card, consult the manufacturer. For the 6890N and 6850, contact an Agilent service representative. For the LAN/MS Control card, verify the bottom LED is on and that the next LED is blinking at 1 Hz. If it is blinking S-O-S (three short blinks, then three long blinks, followed by three more short blinks), LAN/MS control card firmware needs to be updated. If it is not blinking after a power cycle, it is either defective or it did not receive its IP address.
- If the problem is NOT the MSD ChemStation software or SICL drivers, then it might be the Agilent Bootp server

When ping fails, everything must be checked because the computer, the device, and/or the network could be at fault. The problem could be hardware, software, firmware, configuration, or the network. The most expedient approach is to restart the installation procedure. If your network has other computers with TCP/IP networking, try to ping the MSD ChemStation, the MSD, and the GC from one of the other computers.

Error Messages

Error message: Loopback @ 10.1.1.100 failed the Ping test. Help message: Loopback Failure

This is a fundamental problem with TCP/IP networking protocol and generally means networking drivers are not correctly bound to the network card or that TCP/IP is not installed correctly. It could also mean the network card is defective or that there is an IRQ conflict.

Reinstall/reconfigure the system as an isolated LAN, then try again. If still bad, do the following:

1. Verify BIOS enables LAN.
2. Check the system log using the operating system Event Viewer for network errors (indicated in red).
3. Reinstall and reconfigure TCP/IP (*Microsoft Windows 2000 Professional only*) or reset the TCP/IP stack (*Microsoft XP Professional only*).
4. Verify drivers.
5. Verify port (aui, 10baseT, and so forth).
6. Reinstall current Windows Service Pack(s).

Error message: GC @ www.xxx.yyy.zzz failed the Ping test. Help message: Ping GC Failure (loopback has succeeded!)

Possible causes

- Incorrect IP address
- No physical connection
- GC powered down
- Bootp service not up (6890A/Plus GCs and 6850 GCs with JetDirect card)
- JetDirect card failure (6890A/Plus GCs and 6850 GCs with JetDirect card)

- ChemStation computer network card failure
- Bad cables

Solution

1. Run Agilent Bootp Service.
2. Verify IP and MAC addresses in Bootp manager and leave Agilent Bootp service up and running.
3. Turn the GC off, then on.
4. Wait 40 seconds for the GC to complete self test.
5. Verify the GC sent a Bootp request and that Bootp service delivered an IP address. Verify that GC MAC and IP addresses are consistent with the instrument configuration in the MSD Configuration program.
6. Run the MSD Configuration program and execute the Help/Check Networking item again.

If the problem persists, reinstall/reconfigure the system as an isolated LAN, then try again.

Error message: MS @ www.xxx.yyy.zzz failed the Ping test. Help message: Ping MS Failure (loopback has succeeded!) (Ping GC, if present, has succeeded)

Possible causes

- Incorrect IP address
- No physical connection
- MSD powered down
- Bootp service not up
- MSD LAN/MS Control card failure
- Agilent MSD Productivity ChemStation computer network card failure
- Bad cables

Solution

1. Run Agilent Bootp Service.
2. Verify IP and MAC addresses in Bootp manager and leave Agilent Bootp service up and running.
3. Reboot the MSD from the Local Control Panel (Controller/Reboot Controller).
4. Wait 25 seconds for the MSD to complete its bootup.
5. Verify that the MSD sent a Bootp request and that Bootp service delivered an IP address. Verify that MSD MAC and IP addresses are consistent with the instrument configuration in the MSD Configuration program.
6. Run the MSD Configuration program and execute the Help/Check Networking item again.

If the problem persists, reinstall/reconfigure the system as an isolated LAN, then try again.

Typical PCS Information in MSDCHEM.INI

```
[HP DDE Library]
ExecFocus=0

[PCS]
USEPOLL=YES
Devices=1,2
Applications=HP-GCMS
Instruments=1,2,4
mscustrpt=1
Path=C:\MSDchem
links=1
link1=ARPALAN,9100
CORELOWMEM=0
Device1=1,0,68GC,IP:10.1.1.101
Device2=1,0,68GC,IP:10.1.1.103

[PCS,1]
_autopath$=C:\MSDchem\MSEXE\
_exepath$=C:\MSDchem\MSEXE\
_helppath$=C:\MSDchem\MSEXE\
_datapath$=C:\MSDchem\1\DATA\
_methpath$=C:\MSDchem\1\METHODS\
_seqpath$=C:\MSDchem\1\SEQUENCE\
Start=no
Devices=
InstType=SMARTCARD
MS_TYPE=4
INLET_GC=3
MS_ID=1
GC_ID=
ALS_ID=
ALS_TYPE=0
MSCONNECTION=0
INSTNAME=Instrument #1
Offline=0
MS_EI=1
MS_CI=1
MS_HED=0
```

```
Application=2
MS_DCPOL=0
Program=C:\MSDchem\MSEXE\MSTOP.EXE
_HELPFILE$=HPMSD.CHM
_INSTPATH$=C:\MSDchem\1\
_DATAFILE$=EVALDEMO.D
_METHFILE$=DEFAULT.M
_SEQFILE$=DEFAULT.S
_LIBPATH$=C:\DATABASE\
_TUNEPATH$=C:\MSDchem\1\5975\

[PCS_32]
Device1=1,SMARTCARD
Link1=lan[10.1.1.102]:hpib,0
Device2=2,SMARTCARD
Link2=lan[10.1.1.104]:hpib,0
```

Typical IP Configuration file (IPCONFIG.TXT)

This is an example of an IP Configuration file when an MSD system is hooked up to a site LAN. This is not an example of an isolated hub.

```
Windows IP Configuration:
    Host Name . . . . . . . . . . . . : MyChemStation
    Primary DNS Suffix  . . . . . . . :
    Node Type . . . . . . . . . . . . : Hybrid
    IP Routing Enabled. . . . . . . . : No
    WINS Proxy Enabled. . . . . . . . : No
    DNS Suffix Search List. . . . . . : pal.mycompany.com.

Ethernet adapter {552C7A7F-A440-4D43-804D-09571DE2B693}:
    Connection-specific DNS Suffix  . :
    Description . . . . . . . . . . . : NOC Extranet Access Adapter
    Physical Address. . . . . . . . . : 12-34-56-78-90-12
    DHCP Enabled. . . . . . . . . . . : No
    IP Address. . . . . . . . . . . . : 0.0.0.0
    Subnet Mask . . . . . . . . . . . : 0.0.0.0
    Default Gateway . . . . . . . . . :
    DNS servers . . . . . . . . . . . :

Ethernet adapter Local Area Connection:
    Connection-specific DNS Suffix  . : pal.mycompany.com.
    Description . . . . . . . . . . . : Mini PCI Ethernet Adapter
    Physical Address. . . . . . . . . : 23-45-67-89-01-23
    DHCP Enabled. . . . . . . . . . . : Yes
    Autoconfiguration Enabled . . . . : Yes
    IP Address. . . . . . . . . . . . : 192.168.1.100
    Subnet Mask . . . . . . . . . . . : 255.255.255.0
    Default Gateway . . . . . . . . . : 192.168.1.1
    DHCP Server . . . . . . . . . . . : 192.168.1.33
    DNS Servers . . . . . . . . . . . : 192.168.1.33
                                        192.168.1.34
    Primary WINS Server . . . . . . . : 192.168.1.33
    Secondary WINS Server . . . . . . : 192.168.1.23
    Lease Obtained. . . . . . . . . . : Tuesday, August 07, 2005
    Lease Expires . . . . . . . . . . : Wednesday, August 08, 2005
```

Glossary

ALS (Automatic Liquid Sampler)

A device which transfers a volume of sample from a vial into the inlet of an instrument such as a gas chromatograph for analysis.

Bootp

Bootstrap protocol. A TCP/IP network protocol. Agilent Bootp Service for the MSD ChemStation provides IP addresses as instruments are powered on. The service runs as long as the computer is turned on. When a GC with a JetDirect card is powered up, it sends out a request for an address and keeps requesting until Bootp service responds. It keeps the information until it powered off. Bootp maps hardware addresses to software addresses. When an MSD with a LAN/MS control card is powered up, it sends out a request for an address and keeps requesting until Bootp service responds. It keeps the information until it powered off. Previous versions of the MSD ChemStation used a Bootp program (CAG Bootp Server), which is no longer supported.

DNS

Domain Name System. DNS servers use a database to map host names to IP addresses.

DHCP

Dynamic Host Configuration Protocol. Provides dynamic configuration of IP addresses and related information. DHCP provides safe, reliable, and simple TCP/IP network configuration, prevents address conflicts, and helps conserve the use of IP addresses through centralized management of address allocation.

Gateway

Describes a system connected to multiple physical TCP/IP networks, capable of routing or delivering IP packets between them. A gateway translates between different transport protocols or data formats and is generally added to a network primarily for its translation ability. Also referred to as an IP router. See also router, IP address.

Gas Chromatograph (GC)

Instrument that separates molecules from a sample. Involves vapourizing and injecting the sample onto the head of the chromatographic column. The sample is transported through the column by the flow of inert, gaseous mobile phase. The column itself contains a liquid stationary phase which is adsorbed onto the surface of an inert solid.

Host

Any device attached to the network using TCP/IP.

Host Name

Name given to a device connected to the network. The name is limited to 15 characters.

Switch/Hub

A network interconnectivity device used to connect media segments.

IP Address

Software address used to identify a device connected to a network using TCP/IP.

JetDirect card

The JetDirect Print Server Card that is used to provide TCP/IP communications for the 6890A/Plus GC.

LAN/MS Control Card

A proprietary network card that allows communication between the MSD and the ChemStation computer.

Local Area Network (LAN)

A group of computers and other devices dispersed over a relatively limited area and connected by a communications link that enables any device to interact with any other on the network.

Local Control Panel (LCP)

User interface with display found on the front of all 5975 Series and all LAN-capable 5973 Series MSDs. It is used to program and operate the MSD.

Loopback

A troubleshooting technique where a device on a LAN tests its own connection to verify its functionality (pings itself). See ping.

MAC

Media Access Control. A layer in the network architecture which deals with network access and collision detection. See also MAC Address.

MAC Address

A unique 12-digit hex address assigned by the manufacturer to every piece of hardware connected to an Ethernet network. MAC addresses (which are physical addresses) are used for mapping in TCP/IP network communication.

MIO

Modular input/output.

MIO Jet Direct Card

See JetDirect Card.

Mass Selective Detector (MSD)

Instrument that produces charged particles (ions) from the chemical substances that are to be analyzed. The mass spectrometer then uses electric and magnetic fields to measure the mass ("weight") of the charged particles.

Network Card, Network Interface Card

An expansion card or other device used to connect a computer to a local area network (LAN). Also called a network adapter; network adapter card; adapter card; network interface card (NIC).

NIC

See Network Card.

Ping

A command used to verify communication to one or more remote hosts.

Remote Procedure Call (RPC)

A message-passing facility that allows a distributed application to call services available on various machines in a network. Used during remote administration of computers.

Router

Helps LANs achieve interoperability and connectivity and can link LANs that have different network topologies (such as Ethernet and Token Ring). Routers match packet headers to a LAN segment and choose the best path for the packet, optimizing network performance.

SCQ

Smart Card Query. A test of communication between the ChemStation computer and the LAN/MS control card in the MSD.

SICL

Standard Instrument Control Library. A proprietary utility used to configure I/O interfaces. Supplied on the MSD ChemStation CD-ROM.

SmartCard III, SmartCard III+

A proprietary network card that allows communication between the MSD and the ChemStation computer. Also called the LAN/MS Control Card.

Subnet Mask

A 32-bit value that allows the recipient of IP packets to distinguish the network ID portion of the IP address from the host ID. Partitions the network into groups called segments. It is the way a router knows if a packet sent stays on the local network or needs to be passed to a different network. If your IP address is 15.25.25.110 and your subnet mask is 255.255.255.0, then your Network ID is 15.25.25 and the host ID is 110. To send a packet to 15.25.20.111, the packet must be routed to the subnet 15.25.20. The maximum number of hosts on this subnet is 254, because only 1-254 are valid addresses. 0 and 255 are reserved.

TCP/IP

Transmission Control Protocol/Internet Protocol. A set of networking protocols which provide communications across interconnected networks made up of computers with diverse hardware architectures and various operating systems. TCP/IP includes standards for how computers communicate and conventions for connecting networks and routing traffic.

WINS

Windows Internet Name Service. A name resolution service which resolves Windows NT networking computer names to IP addresses in a routed environment. A WINS server handles name registrations, queries, and releases. See also IP address.

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